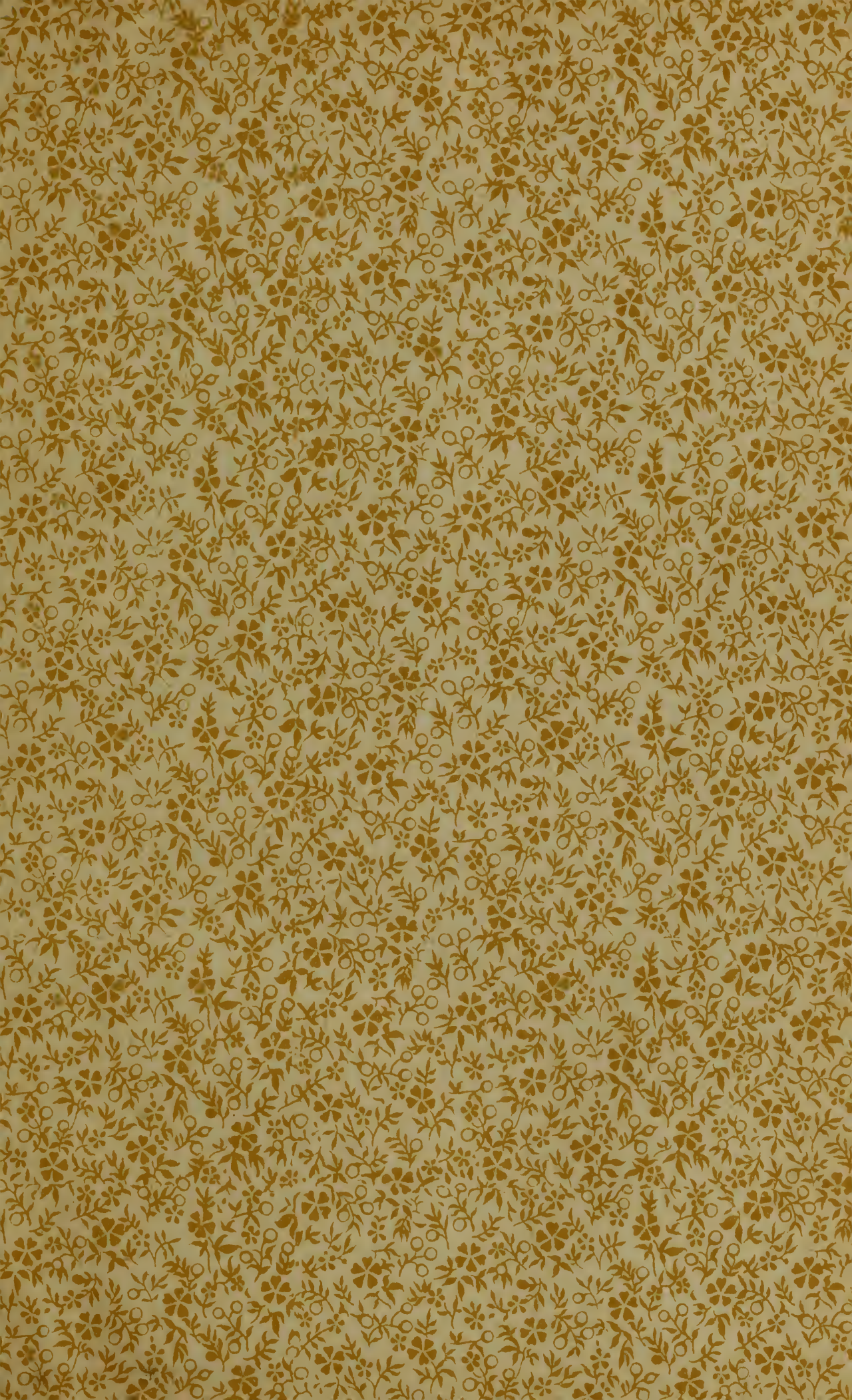


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A7m 35w
N. 25

“Cykology”



THE frontispiece in this Annual, of which a smaller reproduction is shown herein, is a striking example of “Cykological” development in modern, artistic photography. It is a Photoelectric portrait

made with Steffens Electric Light Cabinet and printed on

Professional Cyko Buff

Negative and print were made by E. E. Doty before several hundred photographers at the Annual National Convention of the Photographers' Association of America. In this demonstration of the celebrated Steffens methods, the master photographer, Commodore Steffens, *insisted* upon the use of CYKO PAPER in order to insure perfect results. This confidence in the reliability and artistic qualities of Cyko was well rewarded. Examine the frontispiece print closely. Note its wonderful

depth and softness, as well as the lighting and drapery which reveal the photographer's art. This print marks a new era in portrait photography.

Whether you are an amateur or professional, you cannot afford to be less careful in your choice of mediums than a master of the art. It is a simple fact that your negatives will produce better prints on better paper and the superiority of Cyko has been amply proven.



Paper

Professional Cyko is at once recognized by the expert as a paper that will do justice to his most skillful work.

In the grades and surfaces more suitable to amateur efforts, Cyko is easier to work, gives better results and costs no more than inferior papers. It has *latitude* and under or over exposure within reasonable limits will not spoil the picture.

Cyko has a fine scale of tone gradations and can be depended upon to produce a clear well-balanced

print from any average negative without "doctoring" or "dodging" the negative, an operation requiring considerable skill.

If you have never used Cyko let us urge you to try it at once. The results gained will be a revelation and increase the enthusiasm and pride that every photographer, amateur or professional, feels in his own work.

Let us send you one or the other of our booklets:—

The Cyko Manual for amateurs, a valuable handbook, free from technicalities, or

The Professional Cyko Pointer for professional photographers.



YOU will probably take some "snow pictures" this winter or other photographs under the bright winter sun. Do you know exactly what timing and lighting is necessary for best results under these conditions? To a certain extent, perhaps, yes. But only long experience and keenest judgment of light will enable you to gauge aright in every case, especially in outdoor photography, either winter or summer.

For these reasons you should use the film that has sufficient speed and latitude to compensate for ordinary miscalculations in shutter or timing. You should use

"ANSCO" Film



This film will give clear definition, transparency in shadows and a balance of color tones not possible heretofore without special orthochromatic apparatus. It enables the amateur to attain a new standard in artistic photography.

AnSCO film is made in sizes to fit any film camera. It is easy to handle, non-curling and offsetting of numbers is prevented by the perfectly non-actinic black paper and properly-prepared emulsion. A valuable handbook on Film Photography will be mailed free on request.

AnSCO Company

Binghamton, N. Y.



To Assist You in Making Better Pictures

We manufacture the most complete line
of Photographic Supplies to meet the
requirements of the

The Professional or Amateur Photographer

Our goods are for sale by all dealers or
will be shipped direct, should you exper-
ience any difficulty in obtaining them at
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Photographic Supplies and Apparatus is
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To obtain certain results in Photographic Chemical
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of our chemicals are tested and guaranteed pure for
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Insist on this Trade-Mark.  Accept No Substitute.

BURKE & JAMES
CHICAGO

THE DALLMEYER PORTRAIT LENS

*The Gold Standard of Photo-
graphic Portrait Lenses*



SERIES B, F.3

THE extraordinary speed of these Lenses, their keenness of definition, covering power and ready manipulation for soft focus places them in the lead of all lenses for studio use. These Lenses can be used to produce exquisitely sharp results or those softer studies in which the definition is uniformly diffused. Portraits made with the Dallmeyer Portrait Lens have a distinct style that cannot be equalled. The Faces and Figures stand out in the photograph as in bas-relief work, giving the image thus produced a lifelike expression.

The Dallmeyer Stigmatic Lenses

Are the Highest Types of Stigmatics Made

Dallmeyer Stigmatic Lenses are the highest type of stigmatics made. The Series II is a lens of exceptional quality and is suitable for practically every class of photography from portraits to wide angle work, and is also used extensively in process engraving. A Series II on your hand camera will make you prepared for any emergency.

There is no substitute for Dallmeyer quality.

Send for Booklet of Dallmeyer Lenses.

We are Sole United States Agents for Dallmeyer Lenses



*Made in
Three
Grades*



*Made in
All
Sizes*

TRUE COLOR VALUES



Exposure Made without Color Filter.
to foliage, flowers and sky otherwise unobtainable.

In photographs
can be obtained
only when a Color
Filter is used.
Gives tone values

The Ingento Color Filter

Photographs
colors in their cor-
rect color values.
Without a filter
red and yellow
appear black in the print. With the filter they appear bright, as
in nature. **Made in Three Grades and All Sizes.**



Exposure Made with Ingento Color Filter

Series A For General Use. The fastest filter made. Re-
quires but three times normal exposure. Adapt-
ed for general landscape and snap-shot work.

Series B Wallace's Visual Luminosity. An absolute
filter for any Iso or Ortho plate, requiring eight
times normal exposure.

Series C For reds and yellows. Slightly over-corrected
to give strong effects in sea, clouds and general
landscape work. For copying paintings, highly colored labels,
etc. Adapted for commercial photographers.

Prices from \$1.00 to \$6.00, according to series
and size.

Each Ingento Filter undergoes a rigid spectroscopic
test and is guaranteed accurate.

FOR SALE EVERYWHERE

BURKE & JAMES
CHICAGO



HANDY DEVELOPERS

PUT UP IN BOXES CONTAINING SIX PAIR OF POWDERS AND PREPARED FROM EIGHT DIFFERENT FORMULAE.



Ideal Developing Powders

For Plates, Films and Developing Papers

YOUR CHOICE OF

Hydro-Metol

Eiko-Hydro

Hydrochinon

Eikonogen

Pyro

Amidol

Microgen

Auto-Tank

Six complete powders of one kind in a box, ready to dissolve in water, with full directions.

Price, per Box of 6 Powders, 25c

Don't Take Chances on Exposures!

GET THE EXPOSURE RIGHT
and you can develop successfully by
any method.

WATKINS' BEE METER

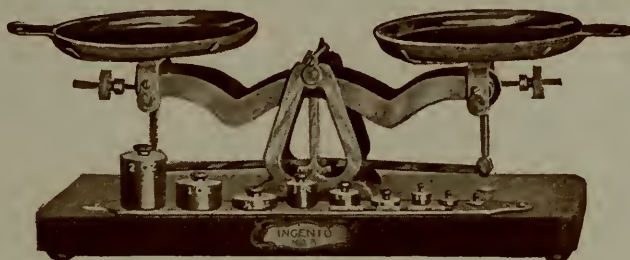


the size of a watch—will insure correct exposure every time, under all conditions of light. You are Taking Chances without One. Price \$1.25. Ask your dealer

BURKE & JAMES
CHICAGO



A Special Scale for the Photographer



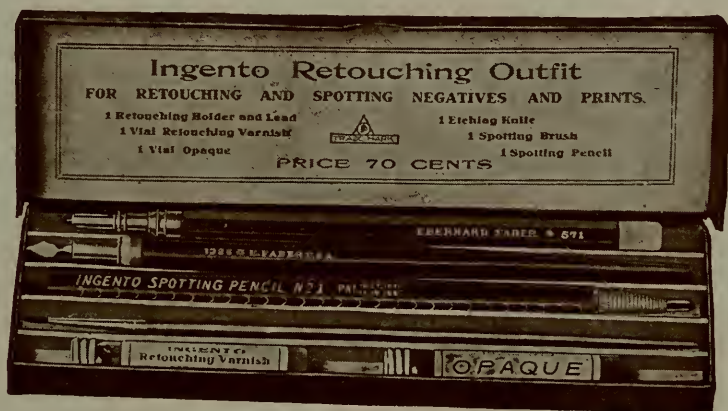
Accurately and perfectly constructed. Sensitive to $\frac{1}{2}$ grain. Pans are $3\frac{1}{2}$ inches in diameter and are interchangeable. Adjustment screws and indicator for accurate and quick weighing.

The Ingento Scale No. 8

Bearings of the best tool steel, protected by dust-proof caps. Fourteen brass and aluminum weights, all guaranteed accurate. Base of polished quarter-sawed oak. All metal parts highly polished and nickel-plated. Weights from $\frac{1}{2}$ grain to two ounces. A most serviceable scale for many purposes.

PRICE \$3.00

Complete Retouching Outfit 70c



Contains all the articles necessary for retouching and spotting.

INGENTO RETOUCHING OUTFIT

Contains Retouching Lead and Holder, Retouching Varnish, Opaque, Etching Knife, Spotting Brush and Spotting Pencil.

A complete outfit in a compact and handy box. All materials necessary for retouching and spotting negatives and prints.

ASK YOUR DEALER OR WRITE US.

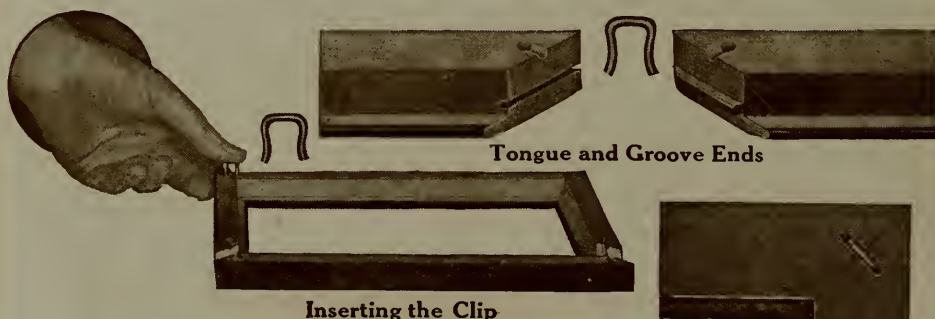
BURKE & JAMES
CHICAGO

Do Your Own Picture Framing with Ingento Lock-Joint Moulding

(GOODROW PATENT)

The Ingento Lock-Joint Moulding is a radical departure. It enables you to **frame your own pictures** at a **lower price**. It insures perfect joints that do not come apart. Not affected by heat; no glue to crack—no nailheads showing on the edges. Put together without tools.

More Rigid than an Ordinary Frame



Inserting the Clip

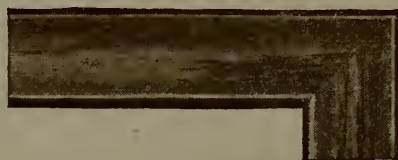
The
Completed
Joint

Buy the moulding in lengths according to size of frame you wish to make. Each strip is mitred and has tongue and groove ends that fit together exactly, and are held in place by strong steel spring clips or staples.

Made in 12 styles of Moulding, 6 widths and twenty-eight lengths; making frames from $3\frac{1}{4}$ inches to 30 inches. Frames of any proportion may be made by simply using two pairs of strips of different size. For instance, panel 4 inch by 12 inch, one pair of 4 inch and one pair 12 inch strips. Spring clips with each pair.



No. 210 Flemish Quarter-Sawed Oak
No. 310 Ebony. Width $\frac{5}{8}$ in.



No. 211 Flemish Quarter-Sawed Oak
No. 311 Ebony. Width $\frac{3}{4}$ in.

The above illustrations show a few of the designs.

Write us for full description and prices, specifying circular No. 160 or ask your dealer.

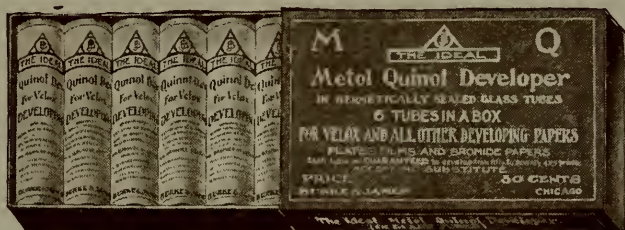
BURKE & JAMES
CHICAGO

The Ideal M. Q. Developer

IN GLASS TUBES

FOR

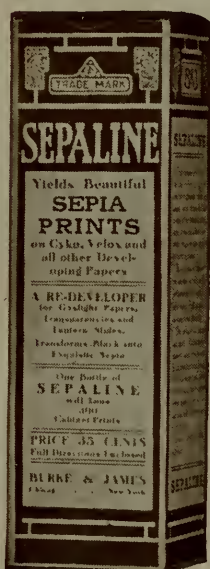
Plates, Films and Developing Papers



The Ideal M. Q. Developer is strongly recommended. It gives perfect results in plate and film development. The negatives are brilliantly clear, free from stain or fog, and possess perfect gradations of tone. For Developing Papers it produces unrivaled results, giving tone values equaled only by platinum or carbon prints. The whites are pure, the gradations are beautifully soft and the shadows rich in detail.

The Ideal M. Q. is compounded from purest chemicals obtainable. It is always reliable and uniform.

PRICE, Box of 6 Tubes, 50c.



Beautiful Sepia Pictures from Black Prints

SEPALINE

yields fine sepia tones on Velox, Cyko, Argon and all other developing or bromide papers.

A REDEVELOPER

for gaslight papers, transparencies and lantern slides. Old or new prints may be changed to exquisite sepia in a few minutes by using Sepaline. The process is simple and quick. One bottle will re-develop 300 cabinet size prints.

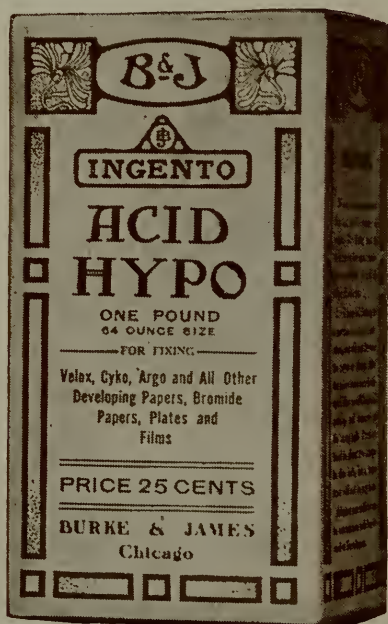
PRICE PER BOTTLE.....35c

Ask your dealer for Sepaline.

BURKE & JAMES
CHICAGO



INGENTO ACID HYPO



An acid fixing bath **must** be used for all Developing or "Gaslight" Papers.

Ingento Acid Hypo prevents stains and **hardens and toughens** the film of the print, rendering it less liable to damage in handling. It **clears** the prints and fixes **rapidly**, preserving all **details and delicate tones**.

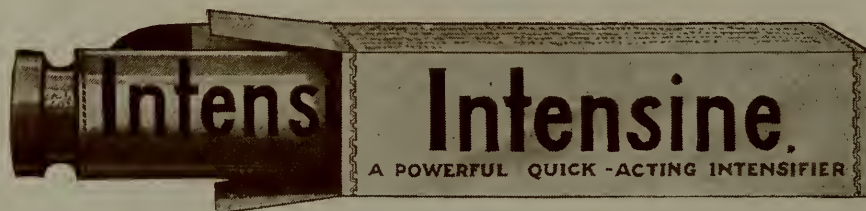
You don't have to measure a certain quantity of each to make a small amount of Hypo bath. That is done for you.

A special process **combines** the acid compound **with** the soda, ready for use.

Use it also for plates and films. Ask your dealer. Insist on **INGENTO**. Sold only in air-tight, moisture proof packages.

One Pound Package 25c
Half " " 15c

Save Your Thin Negatives



For intensifying thin, flat printing negatives. Makes brilliant printers out of weak negatives. Intensine should be in every studio and every amateur should have it in his developing equipment. Intensine is permanent in its results. It may be used on new or old negatives. Try it on an old thin negative and you will be surprised at the results.

Put up in crystalline form, making a single solution. The most convenient intensifier. A great saver of doubtful negatives.

PRICES	{	Per tube	20c
		1 ounce bottle for 24 ozs.	40c
		In liquid form, 8 oz. bottle	25c

TO BE HAD AT ALL DEALERS

BURKE & JAMES
CHICAGO

The Ingento Style



Three Pictures on One Cabinet Print

Three Pictures on one $4\frac{1}{4} \times 6\frac{1}{2}$ Print or 1, 2, 3,
4, 9, 12, 16, 20, 24, 30 or 42 pictures
on a 5x7 Plate.

Three exposures on on a **Plate**—that's the New Ingento Style Photograph. One, two or three persons on one print. Make two folds and attach to suitable folder. New, attractive and a **business getter**. Designed Especially for Rapid Operation.

Ingento No. 37 Camera

With Revolving and Multiplying Back

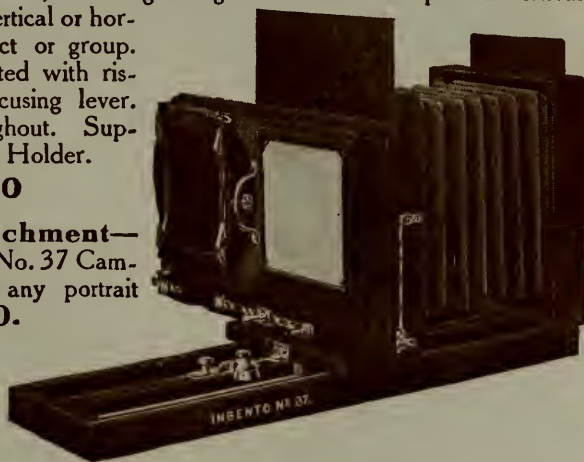
From 1 to 42 exposures can be made **without replacing Slide**—a strong feature for post card and penny work. With the Revolving back an oval may be made on the diagonal of the plate, admitting a larger oval than when plate is vertical. Plate is instantly brought to vertical or horizontal position to suit subject or group. Ingento No. 37 Camera is fitted with rising and falling front and focusing lever. Handsomely finished throughout. Supplied with 5x7 Double Plate Holder.

PRICE \$30.00

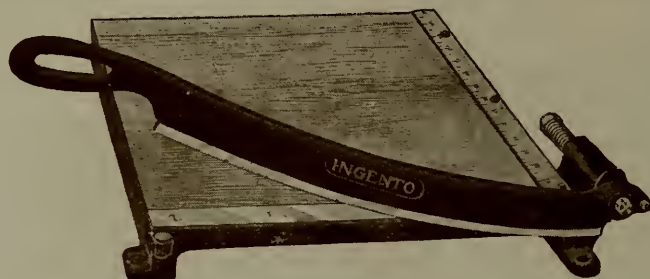
Ingento No. 37 Attachment—practically the entire back of No. 37 Camera fits, or can be fitted to any portrait camera. **PRICE \$18.00.**

A 5x7 Single Curtain Slide Holder supplied at an extra charge \$1.50.

Ask your dealer or write to us for descriptive circular.



Accurate, Clean-Cutting



Ingento Trimming Boards

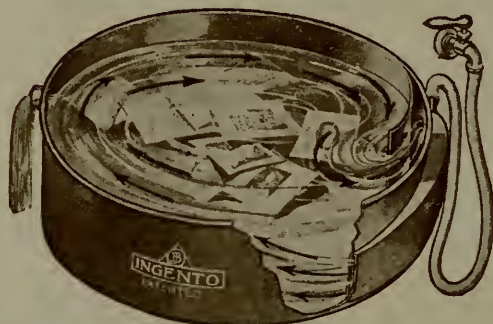
Made of the best material throughout. Concave blades of the best tool steel, will accurately cut from thin tissue paper to heavy cardboard.

A heavy spiral spring and cam keep the blades in perfect contact at the cutting point and prevent the paper from moving while cutting. The keen cutting blades are of the same steel as is used in large paper cutting machines. All parts are heavy and solid.

Ingento Trimming Boards are built for work and are a pleasure to operate. Don't purchase until you have tested the Ingento. Sizes from 5 to 15 inches.

PRICES: from \$0.40 to \$7.00

ASK YOUR DEALER OR WRITE US FOR CIRCULAR.



The Most Thorough Print Washer

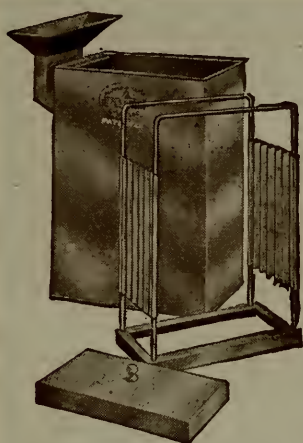
Made on a new principle, entirely different and vastly better than any other.

INGENTO PRINT WASHER

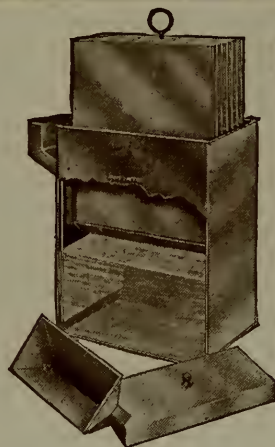
The water from a faucet enters through the inlet near the bottom of the washer and circulates around until it reaches the "breakwater," behind which is an outlet leading directly into the intake channel. The action of the water from the faucet past this opening causes a suction, which draws part of the water back through this inlet. This maintains an even, steady circulation of water with small faucet pressure.

No danger of the prints clogging. Always plenty of water around each print. Simply let water run until every trace of Hypo is eliminated.

Prices \$1.25 to \$6.00



Style A



Style B



Style C

Automatic Development

The Ingento Developing Tanks enable you to develop in daylight. You can develop a dozen as easy as one. It is a safe and sure method of getting the best negatives from your plates in the easiest and most comfortable way.

You don't need to rock a tray in the dark room. Simply load the tank in the darkroom—or use a changing bag and abolish the dark room—and fill the tank and develop your negatives in BROAD DAYLIGHT. The Ingento Developing Tanks are made in three styles and all sizes.

STYLE A—Made of Brass

Tanks of this style can be used for Developing, Fixing and Washing. The developer can be poured off and sufficient Hypo solution poured in to cover the negatives. After the plates are fixed, the Hypo solution can be poured off and the tank then used as a washing box by allowing the water to enter through the funnel.

No.	Size	Price	No.	Size	Price
6.....	3¼x4¼ or L. S.....	\$2 00	6½.....	3¼x5½.....	\$2 00
7.....	4x5.....	2 00	7½.....	4¼x6½.....	3 00
8.....	5x7.....	3 00	9.....	6½x8½.....	3 50
10.....	8x10.....	\$5 00			

STYLE C

The Style C Tank comprises an outer tank for solution, a light-tight inner tank, and a removable rack.

The inner tank containing the rack can be loaded in the Ingento Changing Bag or dark room and afterwards lowered into the outer tank containing the solutions in daylight, and left for half the developing period, after which it is removed and reversed. This reversing of the plates end for end is one of the special features of the apparatus. The bottom and cover are fitted with light-tight screened passages for the air and solutions to pass through.

They are made of heavy brass, handsomely nickel-plated and polished.

PRICES

No.	Size	Extra Plate Rack	Suitable Changing Bag	Double Tank Complete
50.....	3¼x4¼.....	\$ 75.....	\$1 25.....	\$3 50
51.....	4x5.....	90.....	1 25.....	3 50
52.....	3¼x5½.....	90.....	1 25.....	3 50
53.....	4¼x6½.....	1 00.....	1 60.....	4 50
54.....	5x7.....	1 00.....	1 60.....	4 50
55.....	6½x8½.....	1 25.....	2 00.....	6 50
56.....	8x10.....	1 50.....	2 50.....	7 50

STYLE B—Made of Zinc

The Style B tanks are made of heavy zinc and can be used for washing as well as developing, but not for fixing.

No.	Size	Price	No.	Size	Price
1.....	3¼x4¼.....	\$1 00	3.....	5x7.....	\$1 50
2.....	4x5.....	1 00	4.....	6½x8½.....	1 75
2½.....	4¼x6½.....	1 50	5.....	7x10.....	2 00

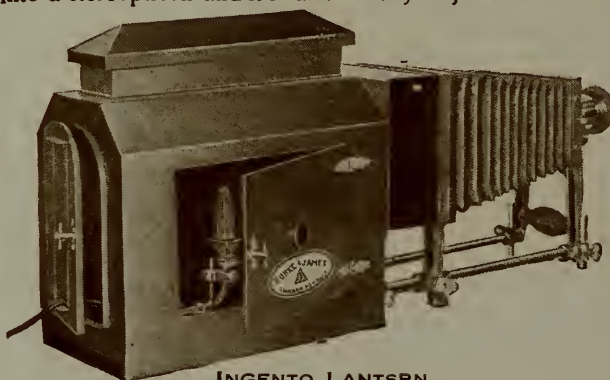
ENLARGE Your Small PICTURES

Much of the detail in a small picture is lost to the naked eye—BUT IT IS THERE. The moving picture with its wealth of detail is thrown upon the canvas from a Film but a little more than ONE INCH SQUARE.

You can bring out the beauty of YOUR small pictures and make them large enough to frame—preserving photographic gems that might otherwise be lost or forgotten—by using the

INGENTO ENLARGING LANTERN

For Electricity, Acetylene, Gasoline or Gas. The most complete and highly satisfactory lantern made. With a lantern slide adapter it is converted into a stereopticon and it is also readily adjusted for reducing to make lantern slides.



INGENTO LANTSRN

Ingento Lanterns, the Ideal fullfils all the exacting requirements of a perfect enlarging apparatus, Ask your dealer or write for booklet and price.

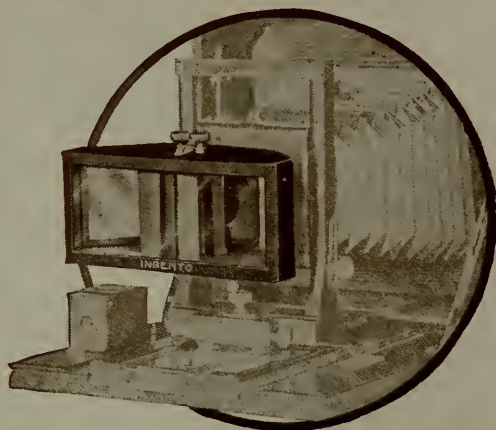
There is no branch of photography as sure as enlarging. You know just what your picture is before you begin the work.

No Waste.
No Uncertainty.

Ideal Lanterns

For Gas, Gasoline or Oil. Like the

Make Your Own Stereoscope Views Ingento Stereoscopic Attachment



The attachment is fastened by a simple clamping device to the lens hood of your camera and the double image is seen on the focusing screen, just as it will appear in the print. It is not necessary to transpose the prints as with a stereoscope camera—simply print like an ordinary photograph,

Does not increase the exposure.

Very easy to operate. Any one

can use it. Hard wood, covered with morocco grained leatherette. Entirely enclosed in glass to protect from dust and moisture. In handsome black leatherette case.

No. 1. for lens from $1\frac{1}{8}$ to $1\frac{3}{4}$ inches in diameter.

No. 2. for lens from $1\frac{3}{4}$ to $2\frac{1}{2}$ inches in diameter.

Ask Your Dealer.

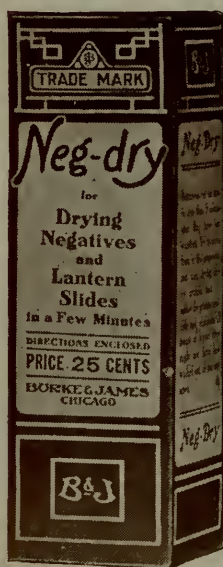
PRICE \$5.00



YOURS
for the asking

Complete catalog of the best books published on the many branches of photography is yours if you write.

Every Professional and Amateur Photographer should have this Complete List of Books. It contains the Title, Description and Price of Books on sixty different phases of the art. Better write for it at once.



Dries Negatives Quickly

You can dry negatives in a few minutes by immersing them in a bath of Neg-Dry after they are washed.

Neg-Dry

Enables you to dry Negatives rapidly by artificial heat. It makes the gelatine insoluble and eliminates any lingering traces of hypo.

Use it for Plates and Films. Hardens the emulsion. Obviates the use of varnish.

In 4 Ounce Bottles, 25c

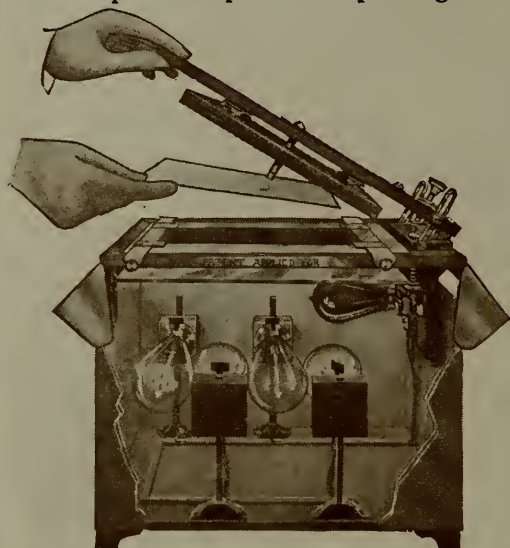
ASK YOUR DEALER FOR NEG-DRY

BURKE & JAMES
CHICAGO

RAPID PRINTING

**The Greatest Time and Labor Saving Device for
the Busy Photographer**

The Ingento Rapid Printer for Post Cards and Developing Papers, is very simple in operation and automatic in its action. The Negative is placed upon the plate glass top and paper or card laid



Sectional View of
Ingento Rapid Printer

upon it. The pressure board is brought down automatically switching on the printing light. When released, the pressure board turns off the printing light and switches on non-actinic light instantaneously. Not a second lost in operation. The most satisfactory printer at any price. Wired for four tungsten or tantulum bulbs, obtainable from your electric company supplied with wiring, plug for socket, and non-actinic bulb. Prints negatives up to size 8x10 inches.

Ask your dealer or write us

PRICE \$16.00

WORKING IN DAYLIGHT



You can load and unload your plate holders in broad daylight by using the

INGENTO CHANGING BAG

It is just the thing for loading your Ingento Developing Tank, or by the use of a couple of trays, you can develop readily by that method—dispensing with the dark room entirely,

A changing bag is one of the handiest of accessories. "Take one with you on your trip." Ask Your Dealer to Demonstrate it.

PRICE \$1.25 to \$2.50



GOERZ LENSES

In amateur or professional hands Goerz Lenses give uniformly the best results. There is a Goerz lens for every purpose.

For the studio and for highest speed work, it is the *Celor*.

For extreme wide angle work, architectural, interior or landscape, the *Hypergon*, a special lens covering an angle of 135 degrees.

For long distance work, the *Telephoto* lens; any Goerz lens, except *Hypergon*, can be converted into a telephoto lens by the addition of a Goerz tele-negative lens and tele-tube.

For hand camera work there is the inexpensive *Syntor*, a highly corrected and thoroughly efficient anastigmat, designed especially for hand cameras and made only up to the No. 6 size for 8x10 cameras.

And finally the *Dagor*, the lens that combines enough of all the qualities found in the others to make it by far the best all around lens. The *Dagor* is an ideal lens for the amateur.

We are sole Central States wholesale agents for

GOERZ LENSES

BURKE & JAMES CHICAGO



Style A.—Universal. Compound B.L., Wollensack, Goerz Sector



Style B.—For Trigger Release.



Style C.—For Koilos Shutter.



Style D.—For Ibsa Shutter.



Style E.—Roller Blind Shutter.



Style F.—Compound.

A METALLIC RELEASE ON YOUR SHUTTER

Eliminates all the bother of the tube and bulb. If you leave the bulb on your shutter it causes trouble in closing. If you carry it in your pocket it will collect dust, which you will pump into your shutter when you make an exposure.

Antinous Metallic Release

(WATSON PATENT)

is very small and compact. Made of metal with flexible everwearing cover. Unaffected by climate. No rubber parts to harden and become useless.

Antinous Metallic Releases work without vibration and never fail to act. They are made for every style of shutter. They take up practically no room in the camera and are always ready.

Ask your dealer for the Metallic Release and avoid the troublesome bulb. **Price 75c.**

WE ARE SOLE U. S. AGENTS FOR THESE RELEASES

A Title adds Interest to your Pictures



Title them with clear, legible block letters so that every one can read them. Title them with

TITLEIT

Don't spoil the appearance of your post cards by carelessly scratching the name on the plate or film. Letter them plainly with Titleit. Easily applied and economical to use. **Price Complete Outfit 50c.**

AT YOUR DEALERS

BURKE & JAMES
CHICAGO

“Best Plates”

mean those that with the highest speed produce negatives of fullest detail, depth, roundness and brilliancy. In other words,

“Best Plates”

mean Hammer Plates every time.

Special Extra Fast (red label)
and Extra Fast (blue label).



Hammer's Little Book, "A Short Talk
on Negative Making," mailed free.

Hammer Dry Plate Co.

Ohio Ave. and Miami St.

St. Louis, Mo.

The Best Photographic Library money can buy
is a complete set of

The Photo-Miniature

Published Monthly; with Illustrations;
Per Year, \$2.50 ; Single Copy 25 Cents

¶ Plain and practical information, simply written without waste of words or space; always clear and right to the point; comprehensive, but not long-winded. Beautifully illustrated.

¶ Every number is complete in itself and deals with a different subject, covering its practical applications with actual working methods and formulae.

¶ Its pages are written by men who know of what they speak; nothing is given place unless it has practical experience or sound sense behind it. No other magazine is so carefully edited.

¶ All the news of the photographic world—men, methods, conventions, exhibitions and affairs of interest—are discussed in pithy paragraphs and departments for profitable reading.

¶ The magazine is carefully printed and linen stitched, so that it opens flat like a book. A pleasure to read or handle. Convenient in size for pocket use or the library shelf.

¶ The earlier issues of the Photo-Miniature are as interesting and as helpful in their information as is this particular number, the set forming a practical cyclopedia of photographic knowledge. Those who want a complete set should get such numbers as they lack without delay, to avoid disappointment.

*Subscriptions received and any number
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P R E F A C E



IN presenting to the public this the twenty-fifth volume of THE AMERICAN ANNUAL OF PHOTOGRAPHY, we wish to express our hearty appreciation of the generous manner in which the contributors have co-operated with us in preparing this volume. Many articles and pictures had to be left out, so generous was the response to our request for contributions. To those who contributed so willingly, and who are not represented here, we extend our special thanks.

New York, November, 1910

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	27	28	..	1	2	3	4	5		1	2	Nov.	30		31	1	2	3
..	6	7	8	9	10	11	12	10	11	12	13	14	15		16	..	6	7	8	9	10	11	12	
13	14	15	16	17	18	19	17	18	19	20	21	22	23		13	14	15	16	17	18	19	
20	21	22	23	24	25	26	24	25	26	27	28	29	30		20	21	22	23	24	25	26	
27	28	29	30	31	31	..	1	2	3	4	5		6	27	28	29	30	1	2	3
April	3	4	5	6	7	8	9	Aug.	7	8	9	10	11	12	13	Dec.	..	4	5	6	7	8	9	10
	10	11	12	13	14	15	16		14	15	16	17	18	19	20		11	12	13	14	15	16	17	
	17	18	19	20	21	22	23		21	22	23	24	25	26	27		18	19	20	21	22	23	24	
	24	25	26	27	28	29	30		28	29	30	31		25	26	27	28	29	30	31	

1911

	S	M	T	W	T	F	S		S	M	T	W	T	F	S		S	M	T	W	T	F	S				
Jan.	1	2	3	4	5	6	7	May	..	1	2	3	4	5	6	Sept.	..	..	..	..	..	1	2
	8	9	10	11	12	13	14		7	8	9	10	11	12	13		3	4	5	6	7	8	9				
	15	16	17	18	19	20	21		14	15	16	17	18	19	20		10	11	12	13	14	15	16				
	22	23	24	25	26	27	28		21	22	23	24	25	26	27		17	18	19	20	21	22	23				
	29	30	31	..	..	..	..		28	29	30	31	..	..	..		24	25	26	27	28	29	30
Feb.	..	..	..	1	2	3	4	June	..	..	1	2	3	4	Oct.	..	1	2	3	4	5	6	7
	5	6	7	8	9	10	11		4	5	6	7	8	9		10	8	9	10	11	12	13	14				
	12	13	14	15	16	17	18		11	12	13	14	15	16		17	15	16	17	18	19	20	21				
	19	20	21	22	23	24	25		18	19	20	21	22	23		24	22	23	24	25	26	27	28				
	26	27	28	..	..	..	..		25	26	27	28	29	30		..	29	30	31	..	..	..	..
Mar.	1	2	3	4	July	1	Nov.	1	2	3	4	Dec.	1	2
	5	6	7	8	9	10	11		2	3	4	5	6	7		8	5	6	7	8	9		10	11			
	12	13	14	15	16	17	18		9	10	11	12	13	14		15	12	13	14	15	16		17	18			
	19	20	21	22	23	24	25		16	17	18	19	20	21		22	19	20	21	22	23		24	25			
	26	27	28	29	30	31	..		23	24	25	26	27	28		29	26	27	28	29	30				
April	1	Aug.	30	31	Dec.	3	4	5	6	7	8	Dec.	3	4	5	6	7	8
	9	10	11	12	13	14		15	1	2	3		4	5	10	11	12	13		14	15	16			
	16	17	18	19	20	21		22	6	7	8	9	10		11	12	17	18	19	20		21	22	23			
	23	24	25	26	27	28		29	20	21	22	23	24		25	26	24	25	26	27		28	29	30			
	30	27	28	29	30	31		31		

1912

	S	M	T	W	T	F	S		S	M	T	W	T	F	S		S	M	T	W	T	F	S	
Jan.	..	1	2	3	4	5	6	May	1	2	3	4	Sept.	..	1	2	3	4	5	6	7
	7	8	9	10	11	12	13		5	6	7	8	9	10	11		8	9	10	11	12	13	14	
	14	15	16	17	18	19	20		12	13	14	15	16	17	18		15	16	17	18	19	20	21	
	21	22	23	24	25	26	27		19	20	21	22	23	24	25		22	23	24	25	26	27	28	
	28	29	30	31		26	27	28	29	30	31	..		29	30
Feb.	..	4	5	6	7	8	9	June	2	3	4	5	6	7	8	Oct.	..	6	7	8	9	10	11	12
	11	12	13	14	15	16	17		9	10	11	12	13	14	15		13	14	15	16	17	18	19	
	18	19	20	21	22	23	24		16	17	18	19	20	21	22		20	21	22	23	24	25	26	
	25	26	27	28	29	..	..		23	24	25	26	27	28	29		27	28	29	30	31	..	..
	1		2	30	1	2
Mar.	3	4	5	6	7	8	9	July	..	1	2	3	4	5	6	Nov.	..	3	4	5	6	7	8	9
	10	11	12	13	14	15	16		7	8	9	10	11	12	13		10	11	12	13	14	15	16	
	17	18	19	20	21	22	23		14	15	16	17	18	19	20		17	18	19	20	21	22	23	
	24	25	26	27	28	29	30		21	22	23	24	25	26	27		24	25	26	27	28	29	30	
	31		28	29	30	31
April	..	1	2	3	4	5	6	Aug.	..	4	5	6	7	8	9	Dec.	..	1	2	3	4	5	6	7
	7	8	9	10	11	12	13		4	5	6	7	8	9	10		8	9	10	11	12	13	14	
	14	15	16	17	18	19	20		11	12	13	14	15	16	17		15	16	17	18	19	20	21	
	21	22	23	24	25	26	27		18	19	20	21	22	23	24		22	23	24	25	26	27	28	
	28	29	30		25	26	27	28	29	30	31		29	30	31



CHIEF SPLIT SKY,
CAYUGA TRIBE.

Geo. D. Jopson.

The American Annual of Photography .. 1911

THE OIL PROCESS

By JOHN M. DILLON.



IT IS not within the province of a short article of this kind to enter into the minute details of oil printing or the materials necessary for the production of an oil print. That ground has been thoroughly covered in a monograph on the Oil and Bromoil processes recently published in the Photo Miniature (No. 106) and I earnestly counsel any one who contemplates working either of these fascinating mediums to read that excellent number. Each step in the work is there considered in detail and described in lucid and explicit language by a worker who is evidently experienced and skilled in both processes. I shall only attempt here to point out a few of the errors into which the beginner is likely to fall and if by chance I can prevent some of the annoyances that befell me, and in which ignorance played no inconsiderable part, I shall be amply repaid for writing these lines.

Of all the printing mediums with which I am at all familiar, I believe the oil process offers to the pictorial worker a wider and more certain scope of individual control than any other. I am not unmindful as I write of that beautiful and fascinating process known as gum-bichromate which under the guidance of skilled hands yields results unrivaled for brilliancy, depth and vigor, yet the number of things that can, and do, happen to spoil a gum print and a gum printer's temper are known

only to him. Apart from these many vexations the errors committed by the worker of that process are frequently difficult to account for. In single printing the slightest mistake is remediless and will prove fatal to a successful print, and although the multiple printing in gum permits of the correction of certain errors, it is usually at the cost of vigor and brilliancy. With oil printing and its congener—bromoil—mistakes are, in the main, easily traced and with care may be avoided in the future.

In the hands of an experienced oil worker almost any kind of negative will be found workable although of course it follows, as in every photographic process, that as good a result cannot be expected from a poor negative as from a good one. Yet the control is so great in this ductile medium that under the manipulation of those expert in the process a negative so flat and uninteresting as to be worthless for straight printing will often produce an oil print of extraordinary softness and luminosity, and with a latitude of control second only to the painter's brush. For the beginner, however, it is advisable to select a negative of good contrast, clear shadows and pronounced, though not blocked, high lights. In short a negative which will make a crisp, plucky print in either platinum or carbon. The print from such a plate will prove simpler in pigmenting, but the latitude of control will necessarily be somewhat limited by reason of the domination of light and shade.

One of the most treacherous pitfalls into which the beginner in oil printing is most likely to fall is the misjudgment of exposure. With improper timing of the print the novice will generally find much difficulty in controlling the ink. As one becomes more accustomed to the handling of brushes and pigment the question of exact, or nearly exact, exposure becomes less vital to a successful result, and the reason is that a skillful brush-touch and a nice judgment of the consistency of the ink will go far toward rectifying a slight error in exposure. There are instances, indeed, where certain evening effects are desired when over exposure is a distinct advantage because in that case the pigment is readily retained in all parts of the gelatine ground and the result, under careful brush action, is a soft and mellow quality highly suggestive of the close of day. In the print entitled "Now Came Still Evening On" the exposure



SLEIGH RIDING.

O. C. CONKLING.

visible. If the paper is laid between several thicknesses of some opaque material (the black lining of a dry plate box serves excellently) and put into a *warm* oven for a moment or two it will insure a good printing condition, and this matter of the dryness of the paper plays no small part in exposure and consequently in the final result. Dampness in the paper and moisture in the atmosphere have a decidedly deleterious effect on oil prints and it is, therefore, better to choose a dry, clear day for working the process. Prints made in hot and humid weather are frequently stubborn in pigmenting and the finished picture lacking in richness of tone and texture.

Upon finding under his hand such latitude of personal control the natural tendency of the oil worker (and especially the novice) is to greatly overdo it. Let us always bear in mind the regrettable fact that a delicate, true and discriminating artistic sense is granted to but few and it is, to a great degree, innate. It is well, therefore, to exercise the utmost care and restraint in the modification of the print. Guard strongly against the temptation to pick out high lights, change lines of composition, subdue detail and destroy masses until you are perfectly convinced that the print will be benefited by any of these changes. Before starting to pigment I would suggest that the oil worker make a guide print on any matt-surfaced paper upon which the desired modifications are indicated in pencil and chalk. With this model before him he may proceed to ink-in with a fairly definite idea of what he wishes to achieve. Without this pilot-print he is very apt to flounder about not knowing just what he wants to do. Long delays in laying on the pigment (which this uncertainty of procedure is sure to bring with it) are not desirable. My experience has been that the prints which have been quickly inked-in and definitely finished with a sure hand are those which possess the rich and mellow qualities so characteristic of a good "oil."

Oil printers differ widely in the procedure of pigmenting. Many prefer to cover the entire gelatine surface with a medium tone and gradually build up the shadows with a brush more heavily charged with pigment, or by a softer consistency of ink, and finally to secure detail and high lights by a "hop-ping" action of the brush. Personally I have succeeded best by studying my pilot-print, and after deciding upon the chief



THE OLD STREET, DUNSTER, DEVONSHIRE.
[*From an Oil Print.*]

JOHN M. DILLON.

object of interest, I then ink-in that particular portion of the print and complete it in every detail. This being done I next turn my attention to the remaining parts but keep them subordinated to the already finished and dominant point of inter-



PORTRAIT.

E. G. DUNNING.

est. This difference of opinion regarding the first handling of the print is largely a matter of individual taste and habit and a worker of long experience and skill will undoubtedly find both methods of equal efficiency according to circumstances. I am seriously opposed, however, to the "hopping"

action to secure high lights. It may be that I lack a certain delicate technique with the brush in "hopping" but the fact remains, nevertheless, that I have seldom, if ever, been able to get the same fine quality in the high lights by that method as I have when these lights have been retained by reason of nice exposure and a subsequent normal and straight pigmenting.

It is always best to begin work with a hard ink, for if the exposure has been fairly timed it is astonishing how workable even the hardest ink will prove. If it is necessary to soften the consistency of the ink an infinitesimal quantity of pure linseed oil will be sufficient. Great care is needed not to get the ink too soft, or it may be found extremely difficult to remove it sufficiently to prevent a decided lowering of tone.

The sensitized paper ought to be at least an inch larger all around than the negative for two reasons. In the first place if this precaution is taken it will prevent the pigmenting brush from absorbing moisture from the wet pad: a vexation which is almost sure to happen if the paper is the same size as the negative, and secondly, there is always the possibility that the portions of the paper very near the edges have been imperfectly sensitized.

I have had such excellent results with the Autotype sensitizer that I feel I ought to recommend it to all workers in oil and more especially to the beginner. It is so simple in operation and so uniform in solution that many initial troubles of the oil printer may be eliminated. I have demonstrated that a double coating with this sensitizer (the latter being spread while the former is partially wet) will noticeably increase the sensitiveness of the paper and later on produce a more satisfactory ground to work upon. The toned "oil process" paper made by the same firm and the sepia ink sold by Sinclair, of London, will be found equally satisfactory, and where the subject lends itself to warm tones the above combination will yield prints of fine texture and much brilliancy.

There is one very important step in the production of good oil prints which I think should be brought to the beginner's attention. To him let me sound a clear note of warning not to allow his interest in the development of the image (and I must acknowledge that it is engrossing) to divert his attention from the blotting pad upon which rests his print. It is not

sufficient that this support is *moist*, it must be kept wet; absolutely saturated with water. If it is allowed to become partially dry the pigmenting will proceed with but little apparent change to the inexperienced eye, still the quality and grain of the print will probably be seriously impaired and this will be more manifest when the print is dry. This partial drying of the pad and consequently the gelatine ground is very gradual and easily permitted to go on; yet in the whole process of oil printing, from first to last, there is nothing more absolutely essential to the production of good prints than a saturated pad and a wet gelatine surface to work upon.

In addition to the usual assortment of brushes recommended for the oil process I have found that two or three finely pointed hog bristles perform a function which the others cannot. A sharp-pointed pencil-eraser and a keen knife are occasionally necessary to accentuate a concentrated light, but these tools must be employed with discretion or the print may be spoiled by a distraction of attention to many points.

On Bromoil printing it is not my intention to linger. That process is closely allied to oil and has certain advantages of convenience over it, but its various steps are somewhat less pliable in manipulation, and it does not always respond so readily and sympathetically to the worker.

Generally speaking the beginner will be disappointed with his first attempts in oil printing. The results will probably show a granular and displeasing surface entirely devoid, perhaps, of that velvety richness of tone and texture which he had hoped to gain. Let him not be discouraged, for with practice there will come to him that subtle dexterity of brush-touch, that indefinable something which time, experience and perseverance alone can give, and which will ultimately crown his efforts with success.



A SLEET STORM IN CENTRAL PARK.

JOHN M. DILLON.



ORCHIDS have always had a great fascination for me, and it has been my good fortune to possess two friends who are enthusiastic collectors of these aristocrats of the floral kingdom, thus enabling me to make numerous studies of these rare, fragile and titled foreigners whenever the plants have been at their best.

One cannot help but love these varied forms of floral aristocracy, and a strange fascination instinctively takes hold of one as he is ushered into the greenhouse from the cold, invigorating air of out-of-doors to the humid atmosphere of the tropics. For orchids not only possess gorgeous colors that are the despair of the painter to reproduce, but the perfume exhaled by a single cluster of blossoms is enough to scent the entire greenhouse. With the excessive humidity and the



MENU CARD.

WILLIAM S. RICE.

strong perfume, one almost fancies he is in the midst of a tropical jungle.

Since many of the markings and colorings of the orchid are in yellows, purples and rose tints, it is absolutely necessary, in order to reproduce in photography, their color values, to use color sensitive plates and a color screen or ray filter. For this purpose the Isochromatic plate is best and an Ideal Color Screen, an extra lens of a yellow color to slip over the regular lens, has been found to be very satisfactory. This yellow screen is to correct the values of the colors which contain a large percentage of blue or violet.

The orchid is most interesting, pictorially, when photographed on its native plant without cutting. This necessitates some slight rearranging occasionally, as the stout, thick, fleshy leaves often interfere with a clear view of the flowers, by insisting on "butting in" at most undesirable places.

A little manipulation on the part of the photographer by means of wires which are used in suspending the plants from the roof of the greenhouse, will usually result in holding down or outside of the composition any obstreperous leaves or stems, which, though uninteresting in a picture, are yet necessary for the plant to retain. Many species of orchids have slender, wiry stems which are like pendulums and sway with the slightest draught. These must be supported with the wires just mentioned in some invisible way to avoid any vibration.

The light in a greenhouse is almost as bright as out-of-doors, and in order to get the best results a slightly cloudy day should be selected on which to make the exposures. With the camera stop set to F/32, an exposure of five minutes (with the color screen) is the usual time required. White and light pink, or lavender flowers, can be exposed for two minutes without the color screen, but whenever the flowers are blotched or veined with red, purple or violet, the screen should be used, otherwise the flowers will appear altogether white and chalky.

The plants, seen against a dark background of moss, are often effective, photographed in that way; but where such environments are not to be had, sheets of matt board ranging from white and gray to black, are very serviceable to place back of the orchid plants to relieve the blossoms and make things less confusing.

As long exposures are necessary to secure detail and definition in blossoms, great care should be taken to see that none of the plants or flowers to be included in the views are being



WILLIAM S. RICE

swayed by an unsuspected draught from some open door or window.

When photographing in public conservatories passers-by are sometimes troublesome unless warned to wait until the exposure is made. Considered as a means of artistic expression,

flowers, especially orchids, offer many advantages. The pictures can often be turned to serve some decorative purpose, or as illustrations to florists' catalogues or garden magazines. By trimming and mounting the prints in various ways, as shown in the illustrations, their decorative possibilities are more evident. The orchid is a sort of floral symbol of aristocracy and is much used in the decorations of tables at "swell" dinners. The thought has occurred to me that photographs of the flowers, perhaps enhanced by artistic coloring and trimmed neatly and mounted, would be highly decorative as menu cards, favors, or as souvenirs of some social function.

The accompanying illustration of a menu card was made by trimming the background of the print in the shape of a rectangular panel, allowing a few petals to trail outside. The photograph was then mounted on a gray card, and a simple conventional design drawn with India ink and a draughtsman's ruling pen. The spaces between the lines were then filled in with a wash of green water color. Such a design may easily be reproduced by the half-tone process, or if a photographer wishes to do the work himself, the whole design, print and all, can be photographed, that is, copied with a large camera, and any number of prints desired can then be made from the one negative.

While my main theme in this article has been greenhouse photography, the application of greenhouse photographs to decoration shows another phase of the work. Most photographers who accumulate a large collection of plates, in course of time like to put them to some decorative or practical use, and in no case is this more applicable than in flower photography.



THE GATHERING STORM.

George L. Beam.



EARLY MORNING.

JAMES THOMSON.

METOL AS AN INTENSIFIER

By JAMES THOMSON.



ETOL with sulphite of soda alone as an accelerator does excellent service as an intensifier of gas-light and bromide paper prints—a fact that for some reason has never had adequate emphasis. It is one of the simplest, cleanest, and most efficient methods of strengthening the silver image where the blue-black qualities of the original metallic deposit one would fain retain.

The omission of the customarily employed alkali, such as soda or potash, reduces danger of blisters developing in the subsequent washing should operations be conducted in hot summer weather. This I deem a great point gained, in view of the fact that many a valued print has thus been in an instant sacrificed through softening of the film due to the presence of the alkali in the developing solution with which blackening has been effected, when attempt has been made to strengthen the image.

Most any mercury black will answer, the following, however, being what I personally constantly employ both for prints and negatives:

Hot Water	8 ounces
Bichloride of Mercury.....	80 grains
Bromide of Potash.....	80 grains

After cooling, solution is ready to use; immerse the print, and after all the black deposit has vanished, wash in running water half an hour. At completion of washing, redevelop in the metol solution made up in the following proportions:

Water	8 ounces
Metol	16 grains
Sulphite of Soda, Dry.....	240 grains

This strength of solution results in quite a gain in vigor. If less is desired, dilute normal solution with an equal volume of water. If more contrast is deemed necessary, increase in quantity of metol is indicated.

Before venturing upon a valued print it is advisable to make a test with a waster until one is more acquainted with possibilities as regards contrast with various strengths of solution.

As regards negatives, local intensification is never quite satisfactory where sulphite of soda or ammonia are used as blackeners, because the intensified portion so much differs in color from balance of image. In fact, notwithstanding the utmost care in softening the joining the line of demarkation is sometimes plainly visible in resultant prints. The intensified part upon a Metol-Quinone developed negative shows up like a brown patch upon a black garment, an inharmony one would fain remove.

The difficulty can be easily and efficiently obviated by adapting the following procedure.

In a tray containing four ounces of water, dissolve 120 grains sulphite of soda, dry.

In another try with an equal portion of water dissolve 8 grains of metol.

The part about to be intensified, having been just blackened and washed, the negative is immersed in the sulphite of soda for about a minute and is then, without washing, transferred to the metol where it may remain for five minutes. Complete by a half-hour's wash. For less contrast dilute with water.

There will result a negative harmonious in color throughout, the intensified portion in no manner differing from the balance of the image.



POLYGONUM.

NATHAN R. GRAVES.

THE ORTHOCHROMATIC PLATE IN LANDSCAPE PHOTOGRAPHY

By G. T. HARRIS, F.R.P.S.



IF any justification is needed for the subject of this article it may be found in the recent utterance of a well-known photographic worker before the Royal Photographic Society of Great Britain, wherein was stated his decided preference for "ordinary" plates (as opposed to "orthochromatic" plates) for landscape work. Now, it goes without saying that every one is fully entitled to the result of his own cogitations as far as they effect his individual preferences, but it may happen that some inexperienced worker seeking information will accept as an authoritative statement what was merely an expression of personal preference. The struggle of the orthochromatic plates for position has in times past been a very strenuous one, and I am not sure that even now, when they are so universally used, that their use is the result of a clear recognition of their qualities and advantages. From my own observation I am convinced that a very small proportion of the users of orthochromatic plates could defend on technical grounds their employment of them. The prevalent belief, and the main objection, with regard to the orthochromatic plate is that it has to be developed in total darkness.

For the last twenty years I have exclusively used orthochromatic plates in my landscape work, and I accepted them only after a clear recognition that they would enormously help in making my work easier and better, this work being topographical landscape photography for publishing purposes.

My conversion to orthochromatic plates was brought about one wet summer spent among the mountains of North Wales. Fine days were infrequent, and even when they chanced the distances in the landscapes were usually obscured with haze. One or two comparative tests with the ordinary plate against the orthochromatic plus a filter quickly decided me that many days could be utilized for work if the orthochromatic plate



PORTRAIT.

HOWARD D. BEACH.

were used, that would be useless when employing ordinary. I am able to place (No. 1 and 2) before my readers comparative illustrations from negatives made about this time to help me to decide between the orthochromatic and ordinary plate, and it should be remembered that at that period orthochromatic plates did not possess the rapidity and general excellence that they now do. That the comparison is a perfectly reliable one may be gathered from the fact that the two negatives were made at the same time, and under exactly similar conditions. Moreover, I was not keenly desirous of changing to orthochromatic plates at the time, as the brand of ordinary plates I was using was remarkably fine, and the orthochromatic were of home preparation. This being the case, I did my level best for the "ordinary" in the matter of careful exposure and development, but, as will be seen, it was "down and out," compared with the ortho plate.

As the result of a large number of comparative tests I came to the conclusion that unless a filter was used with the ortho plate the advantage it had over the ordinary was not very marked, unless with some especial subjects, or under particular atmospheric conditions. To make any marked difference in landscape work the filter must be used; unless it is, the ordinary plate may very well be employed. To substantiate this statement I would direct attention to the second pair of comparative tests, one of many made to decide this point. The view is a birch grove in the new forest, taken at half-past four in a late October evening. The birches and bracken were varying shades of yellow and russet, and the atmosphere decidedly yellow. It may be seen that in the orthochromatic plate taken without the filter the sky is absolutely lost, and the tones of the foliage inferiorly rendered, while the suggestion of sunlight, so well obtained in the filter negative, is quite absent from the one without the filter. This quality, of giving an impression of sunlight, is, to my mind, one of the most valuable assets of the filter, and I have never been able to get it satisfactorily in ordinary landscape work unless the filter was used. (Figs. 3 and 4.)

Unfortunately, orthochromatic plates and yellow filters do not necessarily mean superior tonal rendering, for there have frequently been given illustrations from negatives taken with filters that would deter anyone from ever employing an ortho-



SUBJECT TAKEN WITH
ORTHO. PLATE AND FILTER

Fig. 1

G. T. HARRIS, F.R.P.S.



SUBJECT TAKEN WITH
ORDINARY PLATE WITHOUT FILTER

Fig. 2

G. T. HARRIS, F.R.P.S.

Comparative illustrations to article "The Orthochromatic Plate in Landscape Photography."

chromatic plate and its adjunct; white clouds sailing ostentatiously across black skies, above landscapes dotted with very nearly white trees. Is it any wonder that the orthochromatic plate had a hard battle when such atrocities were put forward in support of the superior qualities of the color sensitive plate and filter? In landscape work the filter should be of medium absorbing power, and the exposure full, or failure is sure to result. Deep filters, under-exposure, with subsequent forcing in development, give results that make one turn with relief to prints from some old wet-plate negative. Not that the deep filter should be repudiated by the landscape photographer, for it is an extremely valuable accessory upon occasion, but when it is used there must be no mistake about having a full exposure, and the negative should err on the side of under-development, otherwise the result will be untrue. Where dense haze obscures the distance, and the atmosphere is dull, a deep filter saves the situation and enables work to be done.

To be quite fair to the "ordinary" plate, there is one point that must be conceded: An "ordinary" plate speeded at 250 H. & D., or thereabouts, with a medium filter, gives a much better rendering of a landscape than does an orthochromatic plate without a filter. Rapidity and sensitiveness to color go to a great extent hand in hand, so that an ordinary plate of exalted speed is sufficiently sensitive to yellow to permit of the filter being used without seriously prolonging exposures. The filter I find most generally useful is of a medium depth, and multiplies the normal exposure about four times, the average exposure for an open view with F.16 being one second in a good light. If the distance is obscured by a considerable amount of haze, I use a filter requiring at least six times the normal exposure, and am careful to give a full one.

Another direction in which orthochromatic plates and filters prove valuable aids to the landscape photographer is when working in overcast weather. Their power of improving the gradation in a negative taken in dull weather is marvelous, and overcast days when the air is quite still are really ideal days for foliage subjects when using an ortho plate and filter. In the Autumn of 1909 I went to the New Forest for a series of negatives of the forest, and during a fortnight's stay had only one fine day, the rest were days of absolute stillness, with a



SUBJECT TAKEN ON
ORTHO PLATE WITH FILTER.

Fig. 3

G. T. HARRIS, F.R.P.S.



SUBJECT TAKEN ON
ORTHO PLATE WITHOUT FILTER.

Fig. 4

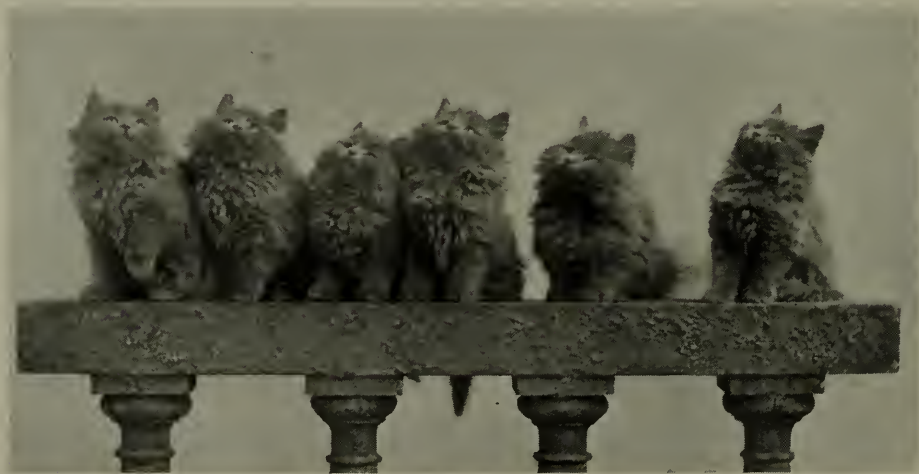
G. T. HARRIS, F.R.P.S.

Comparative illustrations to article "The Orthochromatic Plate in Landscape Photography."

dull, heavy atmosphere, and quite often a fine drizzling rain; In spite of these adverse conditions I obtained nearly a hundred excellent negatives, using orthochromatic plates and filters.

If it were not for the trouble involved I would certainly use only bathed plates, as I find them much more color sensitive than when the dye is incorporated with the emulsion, but the work of bathing and drying, say, two gross of plates, when going away for a series of negatives inclines me to adhere to the dyed emulsion plate. I have, however, bathed batches of plates using the excellent formulæ of Messrs. Newton & Bull, and have been exceedingly gratified with the results, and have kept them in good condition over four months. Although less color sensitive the orthochromatic emulsion plate has the advantage of splendid keeping qualities if carefully packed and stored. I am at the present time using part of a batch I made nearly a year and a half ago, and they are perfect in every respect.

In this article I have made no pretense of dealing with orthochromatic plates and filters from an exact, scientific standpoint; this has been done, and well done, by abler hands than mine. All I have attempted is to bring home to the photographer who has a large amount of landscape work to deal with, the fact that if he desires the highest technical quality in his negatives he cannot afford to ignore the orthochromatic plate and filter.



KITTENS.

ROBERT BURNIE.

SOME COMMON DEFECTS OF PHOTOGRAPHIC LENSES

By ARTHUR E. MAYER.



IN presenting this article to the readers of the ANNUAL, it is not my object to put forth some startling new theory, or fact, in optics, but to simply point out a few of the many defects to which the photographic lens is liable, and to explain them in such a way that better results may be obtained while using the lens. The information contained herein will be of use both to a person about to try out a new lens with the idea of purchasing it, and to one having such a lens, so that he may use it to best advantage.

While a high-priced lens should contain few, or none, of these defects about to be explained, there are a great many medium and low-priced lenses on the market that are not free from at least some of these objections.

One of the most common defects found in lenses, especially of the single lens type, is chromatic aberration, which is due to the chemical or actinic rays being brought to a focus on a plane a short distance in front of the visual or non-actinic rays. This can best be shown by the following illustration:

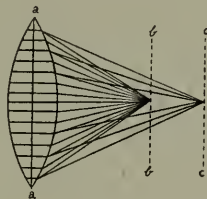


Fig. 1

AA' being the lens, BB' and CC' being the plane of focus of the chemical and visual rays, respectively. The simplest way to test a lens for this defect is to place it in a camera and focus on a dark colored tree trunk with a light background. Here the rays used in focusing on the ground-glass are essentially the yellow, or non-actinic, rays. Now, if we put

a sensitive plate in the position of the ground-glass, and make an exposure, the rays acting on the silver salts of the emulsion will be affected chiefly by the blue and blue violet rays. Hence, when the exposure is made, and the lens is not corrected, the tree upon which it was focused will be blurred and ruined in definition.



LANDSCAPE.

JAMES T. DYE.

There are two simple ways of overcoming this difficulty, the first being to place, while focusing, in front of the lens a piece of blue violet glass. This permits only the chemical rays to enter, hence the view may be focused by chemical rays alone. This, however, has its disadvantage, for the amount of light admitted is so small that it is difficult to get a good, sharp focus. The other method is to focus on an object, and make an exposure, then rack the plate forward about $\frac{1}{16}$ th of an inch, and make a second exposure on the second plate. Repeat this several times, moving it one $\frac{1}{16}$ th of an inch each time. After development it can be readily seen which has the best definition. Make a note of this, and each time in the future when using the lens after focusing rack the plate for-

ward this constant amount. One thing that is very important to bear in mind is when using a lens having this defect, the smallest stop consistent should be used; as this trouble comes largely from the edges of the lens.

Upon superficial examination of a lens we may detect bubbles of gas within the glass. By some people they are classed as defects, and while theoretically they are defects, they do no material damage to the lens. Lenses of older and cheaper makes do not have these air bells, because in their construction only crown and flint glass were used; in fact, it can be truly said that these air bubbles are the hall-mark of the material used in the construction of a lens. As photography advanced it called for a better grade glass with a higher refractive index, and to meet this demand the original Jena glass was produced. Owing to the peculiar formulae, being

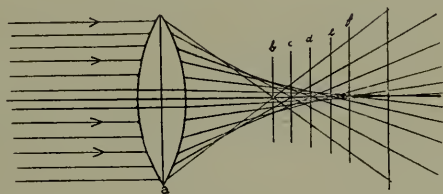


Fig. 2

so high in alumina, to meet the high optical standards required of it, it is a great wonder that it can be worked at all. These small bubbles are no menace to the photographer, as under the most unfavorable condition the loss does not amount to more than .02 of 1 per cent. of the total light admitted.

Another type of defect often met with is spherical aberration, and this is due to the inability of the lens to bring the marginal rays of light to focus in the same plane as the central rays. It is usually found in the single lens, and is caused by the use of plane and spherical surfaces. This is explained by Fig. 2.

It will be noted that the parallel rays of light passing through the lens do not come to a focus at the same point, but the nearer the rays are to the edge of the lens when they pass through, the nearer they come to focus to the lens. It can be readily seen that at no place or point a sharp picture could be obtained. Now, there are two kinds of spherical aberration,

positive and negative, the former being caused by double convex and plano convex lenses, while the latter is caused by double concave and plano concave lenses. It is an interesting fact to note that when a plano convex lens is used the aberration is far greater when the light first comes through the plane side, than vice versa. Chromatic aberration is corrected by placing two lenses together so that the positive powers of the one will be just equal to the negative powers of the other, and bring the two sets of rays to focus at exactly the same point. If a lens is not corrected and it is to be used, it is advisable to stop it down as much as possible, and cut off the rays of light coming from the edges, as it is these that cause nearly all the trouble.

Another defect which most lenses are apt to have to a greater or less degree, is the flare or flare spot. It is the entrance of light into the lens that takes no part in forming of the primary image on the screen. This is most readily detected by focusing the lens on a candle in a darkroom. Move the camera containing the lens around and note if another very faint image occurs; if it is present the flare exists to an appreciable extent. The flare may be caused by two things: First, bright reflecting surfaces in the mounting of the lens, and, second, by reflection of the surfaces of a compound lens having air spaces. In the first instance the error can be easily corrected by covering the edges of the lens, and all reflecting surfaces with black mat varnish. In the second instance the lens should be returned to the maker for correction which may consist of changing the mount, or polishing the lens surfaces.

It is often that a flare can be greatly remedied by changing the position of the stop so that the secondary image will be diffused all over the plate. The use of a lens containing a bad flare should be avoided, as it causes a picture formed to be lacking in contrast, and of a milky appearance.

Distortion, another defect, often due to the single lens, is of two kinds, positive and negative. Positive distortion is caused by the diaphragm being placed in front of the lens, and causes the straight lines to be shown bowed out, or barrel shaped. Negative distortion is caused by the diaphragm being placed on the back of the lens and this makes straight lines appear to be concave, or have a pincushion effect.

Distortion of one kind or another is bound to occur in a single lens, and it has been found that for most work it is preferable to have the barrel shape, or positive form, which results from having the diaphragm in front of the lens. It is often the case that when a lens shows excessive distortion that a considerable part of this may be corrected by adjusting the distance between the lens and diaphragm. Distortion in either form is most apparent near the edges of the plate, and stopping down does not eliminate it.



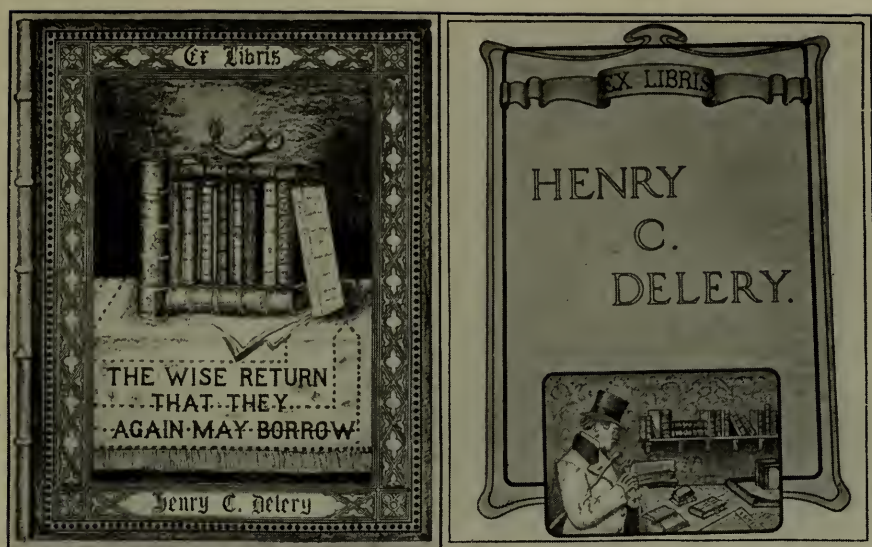
HARVEST DAYS.

WM. T. KNOX.



CHILD PORTRAIT.

ARNOLD GENTHE.



BOOK-PLATE.

HENRY C. DELERY.

PHOTOGRAPHIC BOOK-PLATES

By HENRY C. DELERY.



PERUSAL of our current periodicals and art and crafts magazines reveals a decided renewal of interest in the Art of the Book-Plate, tending to popularize it and to foster its more universal employment. It is with no small wonder that we propose to ourselves this query: Why has not photography been made subservient to the production of these little gems of art?

Among the legions of camerists, there are, no doubt, a very large number of bibliophiles—for with our surfeit of literature of to-day who is not a booklover?—and who desire an appropriate label to identify their books. Perhaps the idea has never occurred to them that photography offers one of the best mediums for the preparations of these little art posters.

As we well know, the book-plate is a name label to replace the written name which so often disfigures a book, and by chaste and elegant design is frequently worthy of consideration as a work of art; in fact, some of the old masters have

thought them worthy of their time and inspiration and one of their number, Durer, is credited as being the father of the book-plate. It was under his skilful hand that it attained an artistic prominence.

The first book-plates were made from rude wood-cuts and with the evolution of time new and better processes were employed; line engraving on copper, free etching and other methods were successfully used, and in our own modern times they are often reproduced by the zinc line engraving process, yielding results, however, which at best are far from pleasing.

The book-plate is thought to have originated in Germany, though there is an unsupported claim that they were used in Japan in the tenth century, but the earliest authentic one on record dates from 1480—a hand-colored heraldic design. Their use spread from France to continental Europe, and finally to England, where they became very popular and where distinct styles were adopted, such as the Armorial—the coat-of-arms and name and motto being impressed in the plate; the Jacobean, with its heavy and formal ornamentation; the light, graceful effects of the Chippendale, named from the celebrated designer of furniture, and followed by the ribbon and wreath style, with its simple and chaste forms, until finally came the portrait and picture plate giving more individuality and variety in its design.

Considering the gradual evolution of design and methods of reproduction; there can be found no possible objections why our beautiful art should not be employed in the preparation of the book-plate, since it offers decided advantages and permits of possibilities almost prohibited by other methods of reproduction.

The first purpose of the book-plate is to denote the possession of a book, yet the design may be of such merit and excellence as to give pleasure as a work of art.

Appropriateness is the keynote of success. The design need not convey the idea of books, as sometimes seems to be the impression, but it should express individuality, may picture the occupation of the owner, his hobbies, allusions to personal achievements, portraits, pictures of favorite places, paraphernalia and mottoes; all of these furnish good material for book-plate designs.



HOME PORTRAITURE.

WM. T. KNOX.

The actual designing of a book-plate is not such a difficult matter as might be imagined; if the photographer is not himself a draughtsman, there are many good ones in our land, and if given sufficient suggestions, will produce very good effects, perhaps not the equal of Durer or some of the old masters, but surely surpassing the harsh, incongruous plates which are printed by certain dealers. A photograph of one's favorite hobby, and certain objects pertaining to one's profession or occupation, as above mentioned, could very easily be shown in a photograph and introduced in the drawing, suggesting individuality and with very pleasing effects.

The drawing being made on a large scale, gives more scope for the working of fine detail; it may be drawn in ink or pencil or a combination of both, and when completed, is photographed to different sizes to suit the dimensions of the books. A slow plate giving good density with clear lines should be employed. It is absolutely necessary to obtain good results that there should be strong contrasts, otherwise the high lights of the print will be clouded and produce a bad effect. When the negatives are finished, it might be necessary to mask all the parts of the plate not included in the picture; this is easily done with opaque and a small brush, or if there be only straight lines on the outside, a strip of paper can be glued along the edges.

There are two methods which give very good results for printing: the Platinotype and Platino-bromide. The platinum process yields a print which is without a peer—and this is said advisedly and without exaggeration—and which equals if not surpasses the finest engraving, and we have the choice of two colors to select from, each beautiful in itself: black or sepia.

The Platino-bromide is also excellent, as by this process we have the facility of obtaining a variety of tints and tones, giving the booklover a chance to match the different colors of his tones. Harmony of color is always sought for in artistic bookbinding, and to place a label which does not harmonize with the general color scheme, is not conducive to the best effects, but with photography it matters not whether the volumes are red, blue, green or brown, we have the facility to make a pleasing combination as suits our pleasure.



NEGATIVE MADE AT
DEMONSTRATION BEFORE
THE NATIONAL CONVENTION.
(Milwaukee, 1910.)

William Shewell Ellis.

THE PHOTOGRAPHING OF HISTORICAL PLACES

By WM. H. BROADWELL.



It is strange that America has not followed in the footsteps of the Royal Photographic Record Society of England. The object of this society is the collection and preservation of photographs of places and buildings possessing an historical interest. These photographs are deposited in the British Museum, and any one desiring to see them can readily do so.

Amateurs, mostly, could do a wonderful thing for future generations, as well as for themselves, if, instead of going off on a holiday and "shooting" off a dozen or more plates on a lot of landscapes that, at the time, appear attractive enough, but which, a week or so later, are cast to one side and eventually forgotten, they would devote their time and plates to the photographing of places with a historical interest.

Some fifteen years ago I commenced taking photographs in the same manner that thousands of others have done. I took trips to the various parts of the surrounding country, photographing scenes that appeared attractive, until there came a time when I did not know where to go, except to some town, or village, further away than I had been accustomed to going. This I did not often have the time to do, such trips taking several days' time to go there. I, at last, hit upon the idea which has kept me busy since then. This was—every time I went off on a holiday trip to have a definite object in view; namely, to photograph some place of historical interest. Whenever I heard of a place that was historical I made a note of it, later looking up directions how to get there, etc., and going there as soon after that as possible. I have made negatives of monuments, buildings, sites of places and buildings, and various other views in many parts of New Jersey. I rarely go to any part of the state without taking a camera with me for the particular purpose of being prepared in case I came across a place of this kind. I am always looking for such places, particularly

places that are obscure, and but little heard of. One can also make a specialty of local views, old buildings in one's own city, public buildings, that are about to be razed to make room for a modern one, very old houses connected with the history of the town, etc.

While many of these plates may have no great value at the present time, one never knows how soon they may have; a fire may remove all traces of an old place; alterations may be made; many other things may occur that will give a negative of this description a value many times the cost of the plate.



NORRIS' TAVERN.

Fig. 1.

WM. H. BROADWELL.

A plate may, to-day, be worth no more than the price of old glass, to-morrow it might bring \$5, \$10, even \$25, but, rest assured, that time will make all such negatives worth more the order they are—especially after a building has disappeared. Then, if one will look up the history of these places—and make this a habit—one will oftentimes learn much that is new to him. and would never have known if he had not taken such a view.

This is a subject that will give a person plenty to do on a winter's night, when he can sit comfortably by the fire. Look up a history, study it, and you can pick out many places that during the spring and summer you can get to.

Do not be selfish and keep these prints for yourself, but make up a set and present this to the nearest Historical Society. They will be only too glad to make an addition to their, oftentimes, meagre collection of prints.

Fig. 1 is not a picture one would look at a second time, except for the title, which gives it a value many times that of a dozen landscapes or pictorial effects so often attempted. Its appearance is just that of an ordinary building, inhabited by negroes, but it is Norris' Tavern, where Arnold was tried for treason.



MONUMENT ON
HOBART MT., N. J.

WM. H. BROADWELL.

Fig. 2.

Fig. 2 is just a large boulder on the mountain top, near Summit, used as a monument to designate the site of the cannon known as the "Old Sow." This cannon is now in front of Washington's Headquarters, at Morristown, N. J. A short time after this view was taken the bronze plate was stolen. Several arguments have been settled as to the wording on this plate by referring to this photo, showing one value of a negative of this kind.

The old forge, represented by two pictures, took me several years to photograph. Fig. 3 shows it as it looked for many

years. Water is now over this site to the depth of sixty feet.

Fig. 4 shows the exact site of the old forge. This is the place where the first hand-made nail was made in America. The British often hunted for this place, but it was so well hidden that they were unable, for a long time, to locate it. One day they came across it, the iron worker quickly covered the forge, and appearing at the door welcomed the British officers. He took them through the place and made it so pleasant for his unexpected visitors that they went away without discovering the secret. Many cannon balls were also made here for Washington's army.

It took me several years to locate the part of the mill where the forge was located. After much time spent in talking with the old people of the town I located it. When I attempted to photograph this corner of the interior I found it very dark, and the floor so rotten it would not hold me, so had to give up the attempt for the time. Some years later, after it had been blown up with dynamite, I walked along the foundation walls to a point where I could get the view I had wanted for so long. The arrow points to the corner which helped to make history.

There are hundreds of places throughout the country that could not only be photographed, but probably never have been. Many of these places will not wait forever for some belated photographer to come along. People will wake up some day, when it is too late, and say, "Why did not some one make a picture of this place?" Don't let that time come, but get on the job at once. I think it would be a fine thing if camera clubs would take up this matter and arrange outings to such places. This would probably start some one who would become interested enough to follow it up.

A set of photos of this kind is always of interest, not alone to yourself, but to any one who sees them. I think I have said enough to show what can be done along this line if you will make it an object when you go on a picture hunting trip.

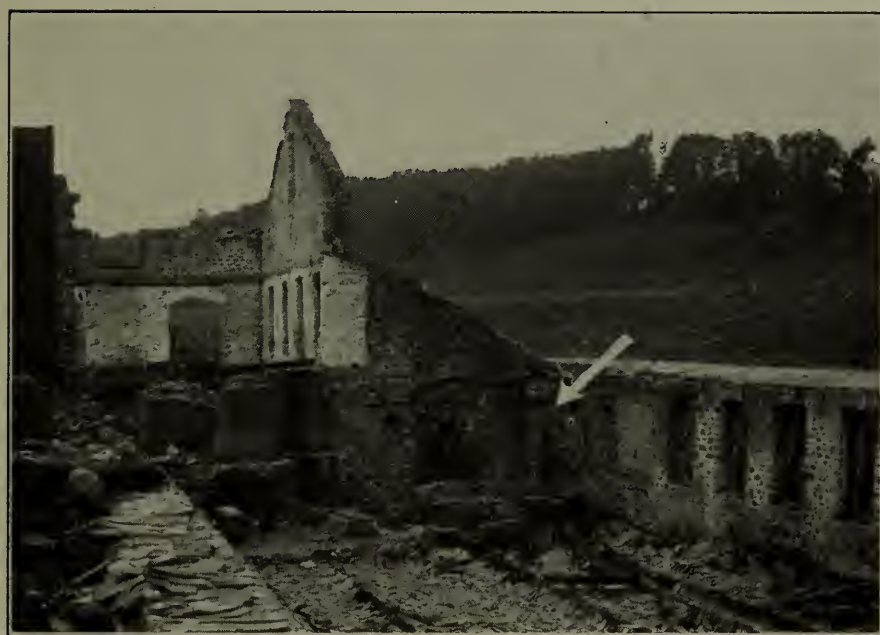
Reader, think this over, and see if you do not in the end coincide with me that it is better to use your plates—and time, too—on something worth while—something that will always be of interest—than it is to waste your plates on things that after a week or two are completely forgotten.



THE OLD FORGE
BOONTON, N. J.

Fig. 3

WM. H. BROADWELL



EXACT SITE OF
THE OLD FORGE

Fig. 4

WM. H. BROADWELL

Illustrating article "Photographing of Historical Places," by Wm. H. Broadwell.



THE MIRROR.

LOUIS FLECKENSTEIN.



A GUARDIAN OF THE COAST.

WILLIAM S. DAVIS.

MARINE PHOTOGRAPHY

By WILLIAM S. DAVIS.



HAVE chosen for my subject "Marine Photography," as it is a difficult branch to follow successfully. Indeed, it seems as difficult as it is fascinating, and who can resist the charm of the sea? Whether roaring surf, or rippling summer waves sparkling in the sunshine, with perhaps a vessel, or the tower of a lone guardian of the coast as a center of interest for the picture one wishes to make.

The best outfit for general use on the seashore, or water, is a focusing camera of simple and solid construction, fitted with a lens of fairly long focus, say seven and a half to ten inches for 4 x 5 plates.

In some cases, more especially when taking a vessel from shore or pier, or to keep the camera further from flying spray,

it will be found a great convenience if the camera extension will allow of using the back combination of the regular lens.

Owing to upward reflections from shore or water, fog from extraneous light entering the camera must always be guarded against; and it is only a safe precaution to wrap a rubber focusing cloth around the camera, and to draw the dark slides of plate-holders under its protection, for a well-made camera may leak light when working on or near water in brilliant sunshine. It is also well to fit a piece of cardboard tube to the lens as a protection against sun or spray striking it. Attention to these apparently trifling details may sometimes turn the balance in favor of good technique after the other operations have been decided upon.

Unless atmospheric conditions are unusually favorable, the best time of day for working will be before 10 a.m. or after 2 p.m. Some of my best pictures have been secured near sunset.

For rock and shore views on a fair day in mid-afternoon $1/25$ of a second with stop F/16 would be about right for a rapid color sensitive plate like the Cramer Inst. Iso. without a ray filter. With a filter $1/5$ to $1/2$ second might be given.

Backed or double-coated Iso. plates, either medium or rapid, will be found best for all kinds of marine work.

Sunsets over the water require about the same exposures as those named. With dark rocks or shipping near by a longer exposure should be given, if possible, and in such cases better results will be obtained by using a Ray Filter.

Exposures for surf must be such as will best convey the idea of motion, so the question of giving the plate a correct exposure must be regulated either by altering the size of the lens stop according to the strength of the light, using color screens, or plates of various speeds. As a rule, $1/20$ to $1/30$ of a second will best preserve the feeling of motion in breakers or dashing spray, although if the foam is very near the camera a slightly shorter exposure might be given, but in any case care should be taken to avoid that "frozen" (snow flake) appearance caused by using the shutter at too high a speed.

In taking spray breaking over rocks, the shutter should be released just as the spray is rising in the air to obtain the maximum effect.



SWEET SIXTEEN.

Harry D. Williar.

When using a camera on moving vessels exposures must, of course, be short enough to avoid blurring of the image, and some allowance must also be made for the extra strength of light. Under these conditions $1/50$ to $1/100$ of a second exposure will be quick enough to overcome the motion, and a much slower speed of shutter can sometimes be used with safety.

Any clear, soft-working developer, such as Edinol or metol-hydro, is suitable for the work under consideration, the great thing to aim for being to obtain a clear negative with full details in the shadows and soft high lights which will not print chalky. It is for this reason I have advised what some would call very full exposures as they allow the shadow details to appear first in development, leaving the general contrast and strength of high lights under the control of the photographer.



EARLY MORNING.

JAMES THOMSON.

A PLEA FOR SIMPLICITY

By MARY H. MULLEN.

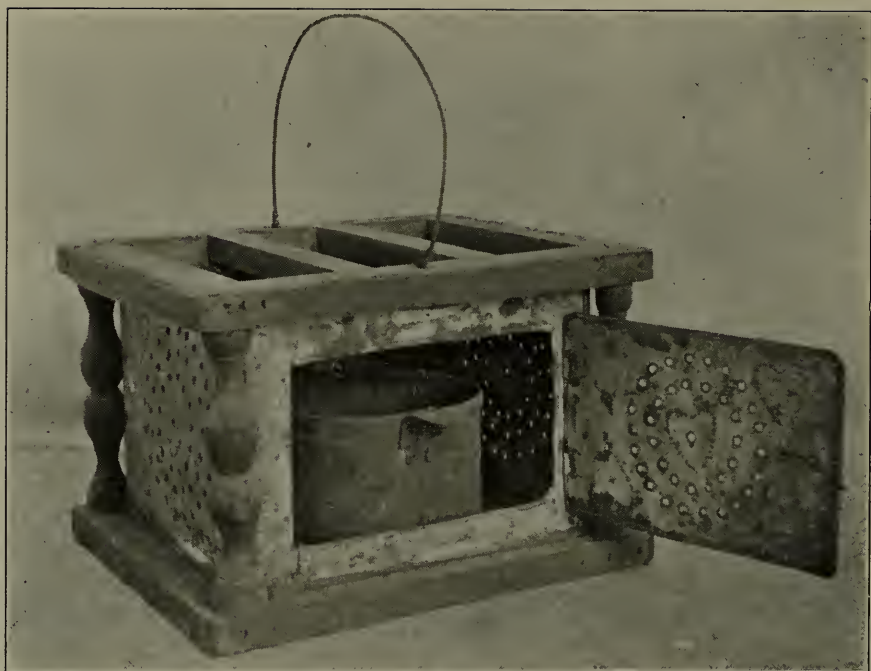


O my way of thinking many pictures just escape being beautiful by the over elaboration of accessories. Too much of detail's, as to ornaments, furniture, etc., detract attention from the face, which, after all, should really be the dominant note. One can achieve effects more lasting, and vastly more pleasing, by a few yards of chiffon simply draped than by the most elaborate costumes, which the more fashionable in mode of to-day, become the more grotesque as time passes. Here is a case in point: A young girl friend brought for my inspection proofs of her pictures taken at one of the well-known and high-priced studios. As fashionable photos they were faultless in every way, and yet how utterly impossible they would be in a few years' time. I felt I could in no better way demonstrate my theories than by an object lesson. I had two pictures of a truly beautiful girl taken some ten years ago. One was a simply draped "bust" picture with a knot of flowers thrust gracefully among the soft folds of chiffon, with loosely gathered hair in the old Grecian style, a photograph as restful and pleasing to-day as when it was just taken, but the other—Ye Gods, what a horror. Do you remember the all-round "pomp," the flat small brimmed "sai'or"—the "wasp" waist, and the "dip" belt? They were all there. It did look funny in spite of the beautiful face. These two pictures, side by side, so impressed my friend that then and there, she swore "never again" would she be photographed in any but the most absolutely "styleless" style. In proof of this I was rejoiced to get a really charming picture of my friend that is now, and will be for all time, "a thing of beauty and a joy forever."



MARY H. MULLEN.

Illustrating article "A Plea for Simplicity."



FOOT STOVE.

J. A. ANDERSON.

COMMON THINGS

By J. A. ANDERSON.



F, in portraiture and landscape, the amateur has, for the time, ceased to find satisfactory subjects for his lens, he may discover them in quite unexpected places. In almost every home the garret, the cellar, the deep closet in which the "old" things are stored, may yield much that is worthy to be preserved in picture form.

There are few houses that have not some interesting pieces of old china or glass, possessing style or ornamentation which cannot fail to be of interest. Or, there may be candlesticks, or lamps, illustrating the "light of other days"; mantel ornaments of ancient style; that clock that ticked for grandfather; the quaint chair in which grandmother sat with her knitting; the wheel from which her deft fingers drew the dainty thread;



MORNING ON THE
SAWMILL RIVER, YONKERS.

Copyright 1910, by Rudolf Eickenmeyer

the every-day cooking utensils which she used ; the straw baskets in which she “set” her bread to rise ; the old wooden bowl in which she mixed it ; the stone jars and jugs in which she stored the apple butter and other home-made supplies ; and countless other homely things that bring to mind reminiscences of the early days.

There is the snuff-box from which the courtly gentleman of the olden time took his “pinch,” and the “patch-box” which supplied added decoration to the powdered cheek of his lady love ; or the old-fashioned “specs” in sliding “bows” of silver ;



BREAD BASKET.

J. A. ANDERSON.

and the ancestral hat, or bonnet, nowadays only brought to light in burlesque imitations of the old-time dress.

A picture may well be made of the foot stove, which, with its cup of hickory coals, served my lady on the wintry ride to “meeting,” as well as in the pew, where her lord and master shivered in the unheated sanctuary ; and many can still show the warming pan, in which also live coals did good service in giving a little warmth to the ice-cold sheets.

The old-fashioned fireplace and the quaint stairway by which the guest ascended may also furnish pleasing illustrations of

early rural architecture, and the bedstead, the chairs, and other articles of furniture, may be sufficiently antiquated to be fit subjects for the lens.

Often a search at home, or in the house of a friend, may be rewarded by "finds" of other sorts, as ornaments of curious form; the sword worn by an ancestor in battle or parade; or some object which has interesting connection with historic characters or events. The collection of the writer includes a bowl from which Washington received "punch," a set of fish-hooks used by his august hands, and a silver cup once owned by General Marion, of Revolutionary fame.

One may turn, too, to old letters, documents, signatures, family records, and other writings, as well as to portraits in oil or Daguerreotype, and the old-fashioned profile, deftly cut by scissors, to preserve the outlines of features once loved and now but a treasured memory.

If the amateur in other work has failed to reach his ideal in composition and lighting, he need not suppose that these may not be sought and found in photographing the "common" things. The arrangement of a row of stone pots may be made pleasing or otherwise, and the lighting may be such as to show only flat surfaces with dark boundaries, or a finely rounded effect which even the untrained eye will appreciate.

The pictures will be more attractive if tinted with the colors which the most of these objects possess. Water colors are used and, with these, the platinum print has been found to serve best. The photographs should be mounted in an album with brief descriptions.

A collection of this kind, in which are included the objects named and many others, has proved of unfailing interest to the writer and his friends.



STONEWARE.

J. A. ANDERSON.

THE PRACTICAL VALUE OF THE TELEPHOTO LENS

By A. RADCLYFFE DUGMORE, F. R. G. S.

(Illustrations from life by the author.)



IN offering this short paper to those interested in photography, I shall endeavor to answer the questions so frequently asked: whether the telephoto lens is practical, and whether it pays to use it?

I shall not enter into technical working details, for it is presumed that the reader is more or less familiar with the subject, and that he knows of the many drawbacks and difficulties which are apparently inevitable.

For the ordinary amateur who does what we might call casual work, I should never advise anything which requires the careful manipulation necessary for good telephotography. Yet for those who are willing to take some trouble, the negative attachment offers many opportunities for most satisfactory work. Even in landscapes it often happens that by being able to take the picture from a considerable distance, the beauty of the composition is very greatly enhanced. Not only is there this improvement in the composition, but the perspective is better, and frequently there is an atmospheric quality due to the distance that is delightful.

For architectural subjects and for mountain scenes, the telephoto lens is at its best. It gives the most satisfactory results, and is most easily manipulated. The subject being stationary, it becomes simply a question of having a suitable camera; that is, one that is rigid enough, and also a sufficiently firm base. The ordinary tripod is seldom satisfactory, as its head is too small, and the legs too flimsy. If a light tripod is used, a fourth leg attached directly to the lens will reduce the chance of vibration. Needless to say the shutter must work without jar.

For subjects which admit of time exposures almost any telephoto lens will give fair results, as by using a small stop the desired definition may be easily secured. When, how-



GRANT'S ZEBRA

*Telephoto, 1-10 second exposure
(about 4 magnifications).*

Copyright P. F. Collier

PHOTO BY A. RADCLYFFE DUGMORE

*From "Camera Adventures in
the African Wilds"*

ever, the subject is a movable one, requiring practically instantaneous exposure, it is absolutely necessary that the lenses should be accurately adjusted, and that the positive lens work clearly with an aperture not smaller than F 4.5. As a matter of fact, very few of the really rapid lenses are suitable for

the work, as they will not give sufficient definition, and more often than not they produce what may be called halation.

Before undertaking my expedition into East Africa for the purpose of photographing big game, I tried many lenses with



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GRANT'S ZEBRA PHOTO BY A. RADCLYFFE DUGMORE
COMING DOWN
TO DRINK

Single 11½ inch lens, instantaneous, about half an hour before sunrise.

From "Camera Adventures in the African Wilds."

telephoto attachments, finally selecting the Dallmeyer portrait lens fitted with the negative lens by the same makers. This combination gave results which were far more satisfactory than I had ever dared to hope for—giving that speed and

definition without the slightest trace of halation, or flatness. And even with low magnification, and the lens wide open, it covered the plate (5 x 7) fairly well to the edges, while with five magnifications it allowed of instantaneous exposures. So useful did this outfit prove that I used it for more than half of the pictures of birds and animals.

The question of when to employ the telephoto, and when the ordinary lens, in animal photography, is not always easy to decide, for there are many pros and cons. We must bear in mind that it is usually necessary to ultimately enlarge the subject, as one can scarcely ever get near enough to a wild animal to secure a sufficiently large image. We must decide, for instance, which would give the best final results if the animal at a given distance is shown half an inch high with an ordinary long focus lens, when with the telephoto it would be, perhaps, two or three inches. Would the smaller and somewhat sharper image when enlarged, let us say to six inches, be as clear as the telephotograph equally enlarged. In settling this question the "grain" of the plate must be taken into consideration. We know that a very small image cannot be greatly enlarged, no matter *how sharp it may be*, as the "grain" would cause a granular effect.

In a general way it is unsatisfactory to enlarge the image of an animal if it is less than half an inch in length, whereas if the image is several inches long and sharp, it is astonishing to what extent it may be magnified without perceptible loss of detail. Many people have an idea that a telephotograph is bound to be fuzzy, and consequently will not enlarge. This is absolutely wrong, and is evidently the result of poor work done with poor outfits. I have in my collection a telephotograph of some giraffes made on a grey day with an exposure of about 1/20 second, the magnification being approximately 4 diameters. The animals were 375 yards away, nearly a quarter of a mile, and they are about half an inch high on the plate. Yet from lantern slides I have shown them fully six feet in height with fair results. From enlarged negatives I have prints of them nearly three inches high, which are apparently as clear as the originals. With a regular lens of 12 or 15-inch focus the animals would not have been an eighth of an inch high, so that anything like an appreciable enlargement

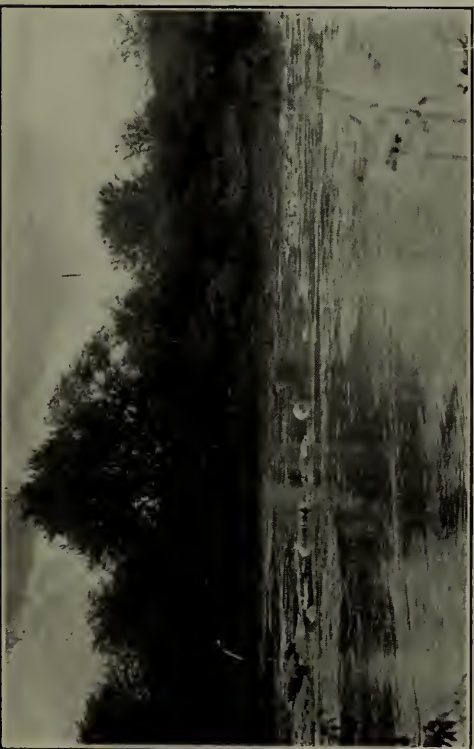


Fig. A
Double Lens 11½ inch Focus.



Fig. B
Single Lens 18 inch Focus.

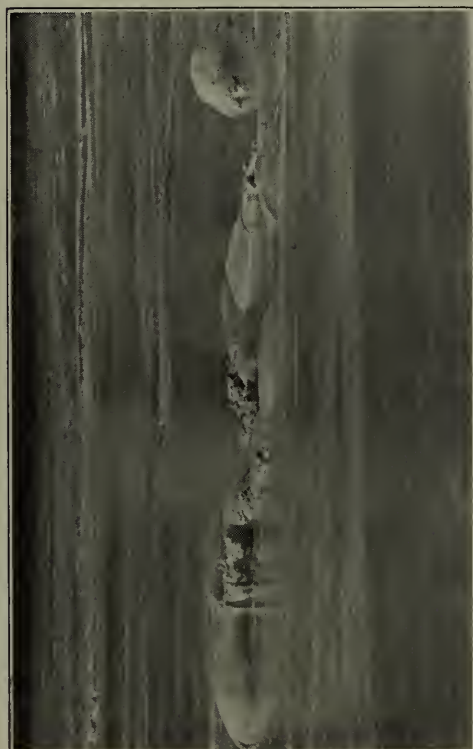


Fig. C
Telephoto of right hand groups

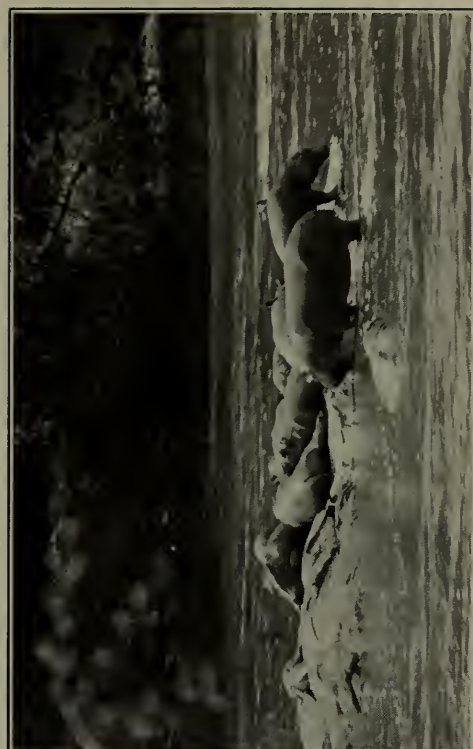


Fig. D
Telephoto of left hand groups

Copyright by P. F. Collier

would not have been possible. The accompanying illustrations demonstrate the relative results obtained with different outfits. It will be seen at a glance that to have enlarged either of the groups of hippos, those in the water, or those on the rocks, from the plate made with the double lens up to the size that the telephoto gives them (Figs. C and D) would not have been possible.

I might add as a hint to those intending to go in for telephotography, that non-halation Isochromatic (rapid) plates should be used, as they give far better results, owing to their not being so sensitive to the atmospheric blues, which are so noticeable in most distant objects. If the subject allows of time exposure, a light yellow screen will be found most helpful.

In speaking, or writing, on this subject people seldom give satisfactory information regarding their lens. They speak of such a magnification, when to give any idea of the comparative merits of respective pictures, the approximate equivalent focus should be given. It is perhaps scarcely necessary to say that for instantaneous telephotography, cameras of the reflex type will give by far the best results.



THROUGH GREEN FIELDS.

A. W. H. WESTON.



THE INLET PIER, ATLANTIC CITY.

W. H. PARTERFIELD.

LANTERN SLIDE PAINTING

By ALFRED H. SAUNDERS.

(Editor, Moving Picture News.)



IN preparing this article my thoughts go back to the days when Wet Collodion Lantern Slides were the only ones turned out by professional manufacturers. For many years I was, and am now, an exponent of the "black art." Well do I remember the commencement of the gelatine lantern slides and the troubles accruing through their use. I still stick to the old "Wet Collodion," for its beauty of detail and half-tones. One reason therefor is that perhaps they are a little easier to color than the present gelatine slides which are usually tinted or stained with aniline dyes, and while many of them are very beautiful, the vast majority are crude dyes, which fade away and remain still more gruesome after every exhibition.

I was one of the teachers of lantern slide painting, taking my lessons from the old workers of the English schools, Childe, Hill, Hall, Veraquest and others, and I still look back to many pupils who are doing well in the "Old Countree." After this digression I will attempt to tell how slides may be colored in oils which will remain permanent under any and all conditions.

Assuming first, that all readers of this article are acquainted with the rudiments of color, there is no need for me to describe the primary, secondary, and tertiary properties of the same. In the old days I tried every kind of color placed on the market, and obtained those most free from grit, and which were the most transparent.

I want especially to mention here a palette I have not been able to obtain in America, namely, the Madderton. The Winsor & Newton's world-wide known colors can be procured from any artists' supply store. In my own work I find that six colors are ample for working with, viz: Prussian Blue, Brown and Italian Pink, Burnt Sienna, Chinese Orange, and Crimson Lake. From these I work up any desired color or

tint. It is possible that some may not be able to restrict themselves to so few, so as a further addition to the palette I would recommend Purple Lake, Alizarin Red, Raw Sienna, Vandyke Brown and Bitumen, these being practically all the colors that are transparent.

The medium used for mixing colors I am now giving for the first time in the history of the industry. It has been one of those trades with special secrets, guarded with jealous care, and I do not know but that my devoted head may pay the penalty for disclosing this to the readers of the *AMERICAN ANNUAL*. It is a secret for which twenty guineas was always paid. It is made as follows: Transparent Gold Size 4 parts, purified linseed oil 2 parts, and redistilled turpentine 1 part. Now, you have the whole secret for proper preparation. If you cannot use this medium any good megilp will answer the purpose, providing it is transparent.

Having obtained colors from any artists' materials dealer, get a porcelain palette, a few good camel hair brushes, two pieces of wash or chamois leather, one piece very soft and good for wiping out clouds, high lights, etc., the other commoner, for wiping brushes after rinsing them in turpentine, to cleanse the paint from them. Turpentine (the best) a good supply, and a stove made as follows: Get some good tinsmith to make a Russian iron box (rivetted, not soldered) 6 inches deep, 6 inches wide and 10 inches long, suspend in this a corrugated rack, similar to a drying rack (made of iron) to take slides $3\frac{1}{4} \times 4$, this being placed on feet, 1 inch from bottom and struts each side and end to prevent it moving about in box, will leave a space of an inch and a half or so all round. Of course, the box can be made longer if desired, but the above is just a nice size to hold eighteen slides (a good day's work). After first coating in color, slides are put into the stove and then placed in kitchen oven, or on hob, and heated to about 200 to 300 degrees, remaining in four or five hours (or, if desired, all night long, as then they gradually cool with the oven), until the paint is thoroughly hard and dry. They are then ready for the second coat, a third and a fourth coat being added, stoving between each, which much enhances the painting, giving solidity to the coloring, as well as making the slide capable of standing the heat of the lantern, if left exposed thereto a long time.

We are now ready to commence work. Secure, if possible, a spare room with northern light, and keep it free from dust, an even degree of warmth (70 to 75 degrees), a table of convenient height, painted with pure white enamel, get your palette with a few grains of color on, squeeze out a fair supply of megilp and add one drop of turps thereto. Now for the subject. Have you got a seascape? Then bring it out and unbind it, wipe it free from dust, hold it in left hand; light will be reflected from surface of table. A small quantity of medium is now taken in brush and spread on palette; now take a small quantity of Prussian blue, mix with medium, then with bold strokes cover the whole slide with blue (sky, sea—all), now, with third finger of right hand—already rubbed smooth with pumice stone—dab the slide all over until it is one even surface and all brush and finger marks are obliterated—a by no means easy task, but practice makes perfect. Having done this to your satisfaction, take your best chamois leather, and cut out a piece some three inches square, screw up to a point, and with this pick out all flecks of white (foam, edges of waves, etc.) with clean, even wiping; now put to stove, until hard and dry. Having done this, next day, mix some green with Prussian blue and burnt sienna or brown pink or Italian pink, according to depth and shade required—*experimentia docet*—touch in here and there, adding depth and shade on sea waves, noting effect after each touch. You will not be able to add to sky. This must be finished in one operation, so, if cloud effects are desired, they must be put in while paint is wet. After dabbing, take piece of leather, roll up, with broader end than for picking out, take sweeps in a circular up and down direction, according to class of cloud desired, then dab color even again and nearly up to the edges where you have wiped out clouds. If boats, ships, or any land jut on the horizon, you may now add crimson lake and burnt sienna to boat, brown pink on sails—which should have been wiped free from the blue first color—a purple, obtained from blue and lake, to land line; stove and retouch again, and slide may be considered complete. If you find you do not succeed at first attempts, take piece of common chamois leather, dip into turpentine and wash off paint from slide, which, if commercial, will be none the worse, but if gelatine, care must be



CRISP AND SPARKLING SNOW.

HARRY D. WILLIAR.

taken not to scratch the surface, as the paint will fill up scratches and show on screen. Do not use rags or linen, as fluff therefrom gets on the palette and renders the colors linty. In all operations use only chamois leather. Having succeeded in painting a seascape, the simplest subject to try, we will now attempt a landscape.

If sky is shown, treat this in the same manner as for the seascape for the simple work; then wipe out all the blue color from foliage, etc., which treat with a coat of burnt sienna, wipe out any objects such as sheep and houses, figures, etc., then stove. For second coat, mix a few green tints on palette, as blue and burnt sienna and blue and brown pink, blue and Italian pink; dab with brush onto foliage here and there, some of the foliage treat with another coat of burnt sienna (autumnal tints) dabbed on, lighten up here and there with Italian pink only; for tree trunks use Chinese orange and burnt sienna. Shadows made with purple (crimson lake and blue). Stove and again touch up, bringing up shadows, and you will find you have got a very realistic and stereoscopic effect.

Students of nature observe at evening very pretty sky effects. The horizon has a crimson, shading to a pale purple, then golden, shading to rich brown (sometimes these are reversed, golden then crimson); finishing at zenith with blue gradually darkening. These effects by a little practice are easily produced on slide; start at the horizon with crimson lake or Italian pink (according to variation); next, a thin sweep of Prussian blue or burnt sienna, then blue, and finishing with Vandyke brown or bitumen. Having got these in order, commence dabbing at the horizon, gradually and carefully working across each tint, then upwards, blending each with the other without a break, finishing at top of slide, resulting in a very pretty effect. After becoming thoroughly conversant with the colors and their properties by practice on these minor subjects, we may now go on to the most difficult of the slide artists' work—figure subjects. These require greater delicacy of touch, more careful work, and nicety in choice and blending of colors, especially if they are Bible subjects. It is useless for one who has not studied Eastern and Oriental costume to attempt to color such subjects; I would advise many whose work has come through my hands

to go to some of our churches, especially the Catholic churches, and observe the coloring on windows and walls; take out note book and write down the various tints. Scripture subjects should be exceedingly rich in color—red, purple, blue, Italian pink and the greens predominate, and they should be coated three, four, or even five times, stoving after each. Ordinary life model subjects can be left to the observation of the colorist.

I had intended giving further instructions, but am afraid of taking up too much space, so will reserve them for some future occasion, and, in conclusion, would strongly advise the student of slide painting to leave alone varnish and other colors specially prepared (so-called) for slide painting, as, except in skilful fingers, very little good can be done with them. As for the aniline dyes—well, this is not painting or color—the least said about them the better, perhaps. In the hands of any one who can use their eyesight, fingers, and brains, the oil colors of the artist's palette are simple.



CAPT. THOS BALDWIN IN
HIS "RED DEVIL."

Copyright by J. H. Hare.



WE SWEAR.

A. W. H. WESTON.

DOLLERY PROLLERY

By A. W. H. WESTON.



NOTHING fresh, anything interesting, anything that offers much scope for original work, is welcome to the photographic fiend.

Wonder not then that even dolls have fallen under the bane, for by their decorative possibilities they place in our hands a new power of design, and at the same time are a medium by which we may point a satire on human wiles and ways. Free to pose, and most suggestive of action, they will illustrate fabulous skit wherein living models fail.

Then despise not the possibilities of these wooden blocks, for it is the operator who must make them succeed or fail. To conceive an original scheme, humorous and passing human, and to think and plan for each pose and effect in that scheme



A TWILIGHT MELODY.

A. B. Hargett.

means success. To treat it carelessly and without due thought means failure; for there is nothing natural about the pose of these dolls unless it is first put there by the operator.

One must be simple, too, and allow the figure to be unencumbered with elaborate accessories, as these will only distract



OH ————?

A. W. H. WESTON.

from the real interest of the subject; and if a distinguishing mark is needed, a moustache, a beard, or a hat, will generally do. Then, the features being only painted on, may be washed off and a different set substituted if required.



DISCRETION.

A. W. H. WESTON.

The background and foreground should be continuous and generally of a half-tone shade. An exception is made when a night effect is intended, as in these illustrations. It should be laid on a table and one end curled over the back of a raised chair to form the background, then the figures may be arranged with a pin stuck through the leg of each, penetrating

through the foreground into the table, and thus firmly securing the figure. The pin should, of course, be arranged so as to be hidden behind the leg, and by taking the reverse side of one of my illustrations, I hope to have made the method of affixing the pins quite clear.



SHOWING METHOD OF AFFIXING PINS.

A. W. H. WESTON.

Such is a bare outline of the actual working facts. Accessories may be made of cardboard and paper, and there is no limit to the use, and abuse, of these little Dutch figures. But the one thing needed to make them successful subjects for the camera I cannot give; for that the reader must depend upon his or her own personal touch.



THE BOLD AND THE BAD.

A. W. H. WESTON.



PORTRAIT.

O. C. CONKLING.

KEEPING UP THE STANDARD

By C. F. TOWNSEND.



PHOTOGRAPHY is a progressive science, and we look upon its progress in previous years with no small degree of pride and satisfaction.

According to our progress we limit our inquiry, and in proportion to our capacity therein, we attain a greater or lesser degree of perfection.

The present-day photography has advanced to that stage of perfection where our inquiries on technical points seem to be limited to the common formula or manufacturer's instructions.

Photography has developed into an absolute necessity. Countless numbers are yearly entering the field with little or no knowledge of the artistic side of the profession.

We are, therefore, brought face to face with the problem of keeping up the artistic standard.

Some are enlarging their capacity by attaining useful knowledge along artistic lines which will not only improve the standard of perfection in photography, but will better their own individual characters, and, with this thought in mind, allow me to make the following suggestions:

First: Improvement of financial standing.

Second: Social, intellectual and moral advancement.

Third: Keeping up personal appearances.

Fourth: Avoid coupon proposition and all forms of agents' solicitation.

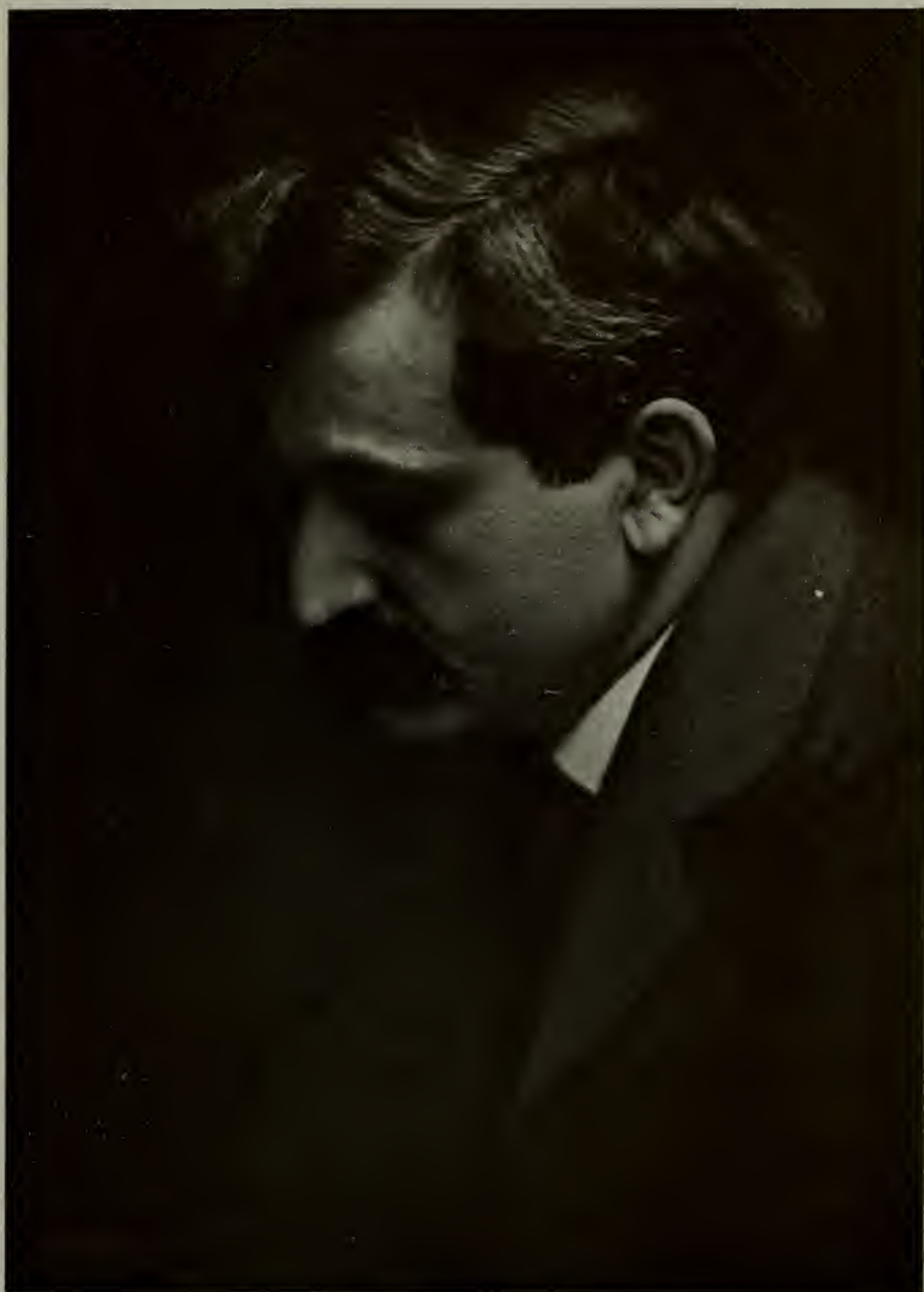
Fifth: Promises faithfully fulfilled always.

Sixth: Better class of exhibits in display cases. Let the public see what wonderful strides photography is making.

Seventh: Strive to produce portraiture of true artistic and commercial value.

Eighth: Keep up on current events. Your conversation will be more intelligent and your subjects of expression better.

Ninth: Join your commercial organizations, lodges, clubs and the church. The better man you are the better business you will enjoy.



Copyright, Falk, N. Y.
B. J. Falk.

DR. EMANUEL LASKER.
(Chess Champion of the World.)

Tenth: Always conduct your business in such a manner as will meet the approval of the better class of citizens.

Eleventh: Practise economy. Make every dollar spent count for something. But don't be a grouch. Give liberally to worthy organizations. Remember the scripture, "The Lord loveth a cheerful giver."

Twelfth: Own your own home and choose good associates. Co-operation is the watchword of the twentieth century. Let us then combine our efforts and raise the standard of photography in 1911, always bearing in mind the future, directing every act of our business and social lives in such a manner as will bring credit rather than disgrace to the fraternity.

"And so live that when thy summons comes to join
The innumerable caravan, which moves
To that mysterious realm, where each shall take
His chamber in the silent halls of death,
Thou go not like the quarry slave at night,
Scourged to his dungeon, but, sustained and soothed
By an unfaltering trust approach thy grave,
Like one who wraps the drapery of his couch
About him, and lies down to pleasant dreams."



FRIENDS.

SAMUEL DORAN.



OVERALLS!

A. W. HIGGINS.

CARBON PRINTING

By A. C. BRAHAM, F. R. P. S.



PERUSAL of the advertisements in the photographic newspapers gives cause for satisfaction and congratulation to anyone who admires or practises carbon printing.

It will be observed that practically all the makers of printing papers describe their products as giving "carbon" effect—"carbon" surface—vigorous "carbon"—soft "carbon"—"carbona" and so on to the end of the chapter. They see and appreciate the supreme excellence of true carbon and endeavor to secure similar results. Truly, one may say imitation is the sincerest form of flattery.

The implied suggestion is, of course, that true carbon is a difficult process not within the scope of the occasional worker or amateur, and demanding exceptional skill to work successfully. That I believe is a libel on the capacity of all serious workers; for the necessary manipulations are simple, and give but few opportunities for error. The printing is about twice as quick as with P. O. P., and all troubles of toning and fixing are eliminated, the particular color of the tissue deciding the tone of the print independently of manipulation.

Chemicals have no part in the development of carbon prints, the only materials used (if such they may be called) being cold and hot water.

After development is complete an alum bath is used to get rid of any trace of the bichromate sensitizer left in the picture.

Carbon materials of reliable quality are supplied by most photographic dealers of repute.

The chief stumbling block to the extended use of carbon printing is that the tissue must be sensitized by the user. This, in the case of sensitizing with an aqueous solution of bichromate, requires four or five hours for drying, and a room temporarily devoted to that purpose. The introduction by the Autotype Company of a spirit sensitizer overcomes the

inconvenience in respect to the long period of drying, in that the tissue can be sensitized, dried and ready for printing within a quarter of an hour of the commencement of operations.

For those who wish to keep sensitive tissue for long periods—extending to months—a useful and adequate appliance is provided in the form of a storage box, containing an inner spring appliance to keep the tissue flat, and a receptacle for pellets of asbestos impregnated with calcium chloride. Over this the air must pass, and is desiccated before reaching the tissue which is thus protected from the action of moisture—the one condition that is unfavorable to the preservation of the solubility of carbon tissue.

The advantages of carbon printing are so great and the difficulties so few, that its use is bound to continually extend.

The range of colors in which tissue is made is so wide that the most fastidious taste or exacting requirements may readily be met, in fact, the manufacturers of carbon tissue are so lavish in the variety of colors they supply that it is frequently a case of “*embarras de choix*” in deciding what color is most suitable for the subject in hand.

Then, after the choice of tissue is decided, comes the question on which transfer paper the picture shall be developed. Here again a great variety is provided, both as regards texture and tone. Papers with a rough texture are suited for bold masses of shadow where detail is subordinated to effect.

The matt fine grain papers occupy an intermediate position between the rough papers, and an extensive variety of smooth surface papers particularly adapted for rendering fine detail.

All these textures of paper may be obtained in a variety of tones, from pure white through cream to buff, and in addition red and yellow papers may be used for firelight effects.

Each worker desires rightly to be a law unto himself. but my own preferences (or prejudices, if the reader chooses so to regard them) lead me to think that should the subject represented be a Cathedral interior, various shades of black may successfully be employed; “Brown Black” or “Warm Black” developed on slightly toned transfer paper giving a charming rendering of stonework. Should the choir, or details of stalls or other woodwork be represented, various browns, such as “Cool Brown” or “Sepia” are more usually selected.



A WINTER MORNING.

P. F. STODDARD.

Landscapes may be printed in blacks, browns and greens of which latter color several different tones are manufactured. For those fortunately enough situated to be able to take snow scenes, "Engraving Black" (printed lightly) offers a means of rendering the range of gradation in snow, between a sun-lit patch and the shadows in a drift not otherwise to be obtained.

For sea-scapes, snap shots of yachts, studies of breaking waves, the various greens and blues ranging from "Italian Green" to "Turquoise Blue" will give a choice of colors wide enough to satisfy the most exacting taste.

In Portraiture, so-called "photographic tones" are readily obtained by using "Portrait Brown," "Ruby Brown" or "Warm Sepia." Many professional photographers not bound by convention employ with great success, especially for portraits of ladies and children, "Red Chalk," "Terra Cotta" and occasionally even "Bright Red" or "Carmine."

By the choice of suitable transfer papers endless modifications of tone and texture may be obtained, ranging from the extreme gloss of P. O. P. (should such be desired) to the deep dead matt of a fine mezzotint engraving, and with an imperceptible grain or the roughest texture.

Who that owns photographs of those "Loved long since and lost awhile," has not had occasion to lament the fading of some valued portrait, and, from a merely utilitarian point of view, what folly it is to spend either time or money in working up, either in color or monochrome, on a base which will probably become yellow and fade, destroying the values of light and shade obtained, and making what was a pleasing portrait only grotesque.

For the credit of photography it is to be regretted that the public do not always realize the risky nature of a worked up silver print, and insist that when they pay for artistic finishing, they shall have a reasonable certainty that the result shall be permanent.

This may be secured by employing carbon prints; the best makers of tissue being scrupulously careful to use only permanent pigments in the manufacture of their products, and to use papers that are least liable to change tone with age, for all papers, even the best, are subject to a slight but negligible change of tone.



RUDOLF DUHRKOOP.

The choice of a process is often decided by the question of cost, although economy should be rather a wise expenditure of money than merely a question of cheapness. In this respect, carbon is about on a par with silver printing, because, although the cost of tissue and transfer may be slightly above that of silver paper, there is no further incidental expense for toning solutions to be considered.

Space forbids my entering in detail on methods of manipulation, but I strongly advise beginners to follow *exactly* the instructions issued by the makers of carbon tissues, and not to deviate from them until they have succeeded in producing good results; for, although all makers of photographic materials are human and therefore fallible, they may be trusted in their own interest to issue instructions which, if followed, leave the least liability to failures.



CRYPT D'AQUILON,
MONASTERY ST. MICHAEL.

R. S. BRUCE.



APRIL WEATHER.

G. T. Harris, F. R. P. S.

AN ADJUSTABLE EASEL FOR ENLARGING AND COPYING

By K. T. KRANTZ.



It is seldom the case that a whole negative is enlarged, more frequently a small portion only is used, and sometimes this occurs in a corner of the original negative.

The use of the simple apparatus about to be described greatly facilitates the rapid location of any part of the projected image on the sensitive paper, and when so desired insures exact registry for any number of enlargements.

The dimensions given are those used by the writer in constructing his easel, but may be varied to almost any extent to suit conditions.

The running board of the writer's enlarging apparatus consists of a clear white pine board, 5 feet long, 12 inches wide, and 2 inches thick. On this two strips of $\frac{1}{2}$ inch by 1 inch white pine are screwed $5\frac{1}{4}$ inches apart, running parallel with each other and the sides of the board. The easel slides along the board on the outside of these strips and is guided by them. This description is given in order that the construction of the easel proper may be more readily explained, and reference to the running board will be made from time to time.

The first step in making the easel is to cut two pieces of $1\frac{1}{2}$ -inch square white pine, 12 inches long, and two pieces of the same 18 inches long. One end of each long piece should be mortised into the centre of a short piece, forming two T-shaped sections. Care should be taken that the verticals are at exact right angle with the horizontals. Two small steel shelf brackets 3 x 4 inches are now screwed into the angle of the "T" sections as indicated on the plan. These will brace the sections strongly and keep the pieces in alignment.

The next step is to procure some tongue and grooved hardwood—the writer used maple flooring—which comes $3\frac{1}{2}$ inches wide, $1\frac{1}{8}$ inches thick, and in sections of from 3 to 16

feet. Two pieces 4 feet long will be ample. These should be clear and free from warping.

Cut three pieces $10\frac{1}{4}$ inches long and plane the tongue and grooves off. Screw one of these to the top of the back end of the "T" pieces, which have been inverted. Another to be screwed to the back of the uprights of the "T" pieces at the top, and the other also in the back $7\frac{1}{2}$ inches below the upper pieces. The back of the "T" pieces should be notched out

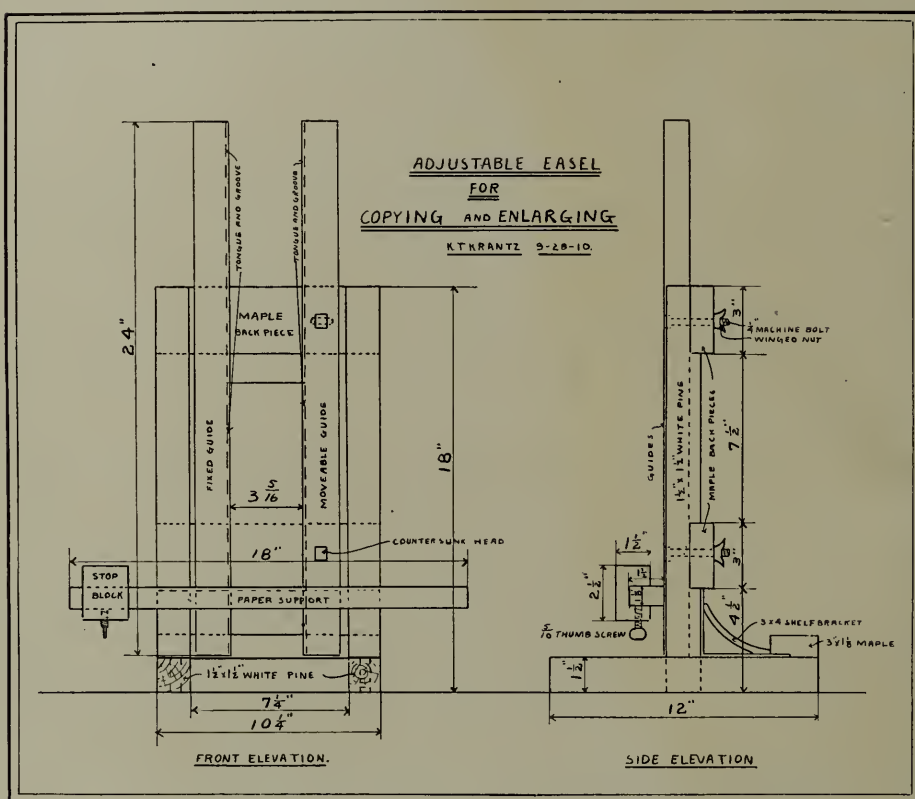


Fig 1.

$\frac{1}{2}$ inch where the cross pieces of maple are secured. By reference to the plan all of the above may readily be understood.

Now, cut a section of the maple 10 inches long, and to the bottom of this firmly screw a piece of maple $1\frac{1}{2}$ inches wide, 18 inches long, taking care that the pieces are at right angles in both directions. The tongue and groove should be left on the 10-inch piece to form guides. The 18-inch piece will become the support for the printing frame, or drawing board, which is to hold the sensitive paper, and for simplification, from now on, will be called the paper support.



ELIAS GOLDENSKY.

A section of maple should now be cut, 24 inches long, and ripped down the centre. This should be fastened to the pieces of maple at the back of the "T" pieces; tongue facing groove, and at such a distance apart that the tongue and groove in the paper support will just slide freely up and down in the reverse groove and the tongue in the upright pieces. These should be placed so that the centre of the paper support comes half way down the "T" pieces.

One of the upright guides should be firmly screwed in place, but the other should be adjustable in order to clamp the paper support at any desired height. This is accomplished as follows:

Through the lower back piece bore a quarter-inch hole and continue this through the upright. Pass a 3-inch machine bolt through this hole, and cut out the front of the upright to a depth sufficient to countersink the square head of the machine bolt. This now forms a pivot for the upright guide. Now bore a hole in a similar manner through the upper back piece and the same guide countersinking the head as before. Alongside the hole in the back piece bore two adjacent $\frac{1}{4}$ -inch holes, and cut a slot so the bolt in the upright may move freely sidewise, having at least $\frac{1}{4}$ -inch play. The bolts should be fitted with washers and winged nuts, in order that they may easily be fastened by hand.

It will now be found that the paper support may be raised to any desired height, and held in that position by merely drawing the movable uprights towards the fixed and tightening the winged nut on same.

Now cut a block of hardwood $2\frac{1}{2}$ inches by 2 inches by $1\frac{1}{2}$ inches, and in this cut a groove $1\frac{1}{8}$ inches wide and 1 inch deep. Bore a $\frac{1}{4}$ -inch hole from the bottom of the groove and force a $\frac{5}{16}$ -inch thumbscrew through the hole so that the wood will take the thread. This serves as a stop when placed on the paper support.

It will be noted that this easel permits of considerable latitude of adjustment both vertically and sidewise, and once adjusted to a given position, any number of enlargements may be made of any portion of a negative in exact registry.

The entire apparatus should be stained a dull black to avoid any reflections. The writer used a mixture of shellac to which



A STUDY .

Francis Bruguiere.

enough lamp black is added to just overcome this glossy finish of the shellac.

The paper support will carry a printing frame as large as 10 x 12 without additional fastening, but when making very large enlargements, a drawing board is used to hold the paper—it is advisable to steady same at the top by means of small iron clamps, which may be purchased for a few cents.

In conclusion, it may be said that the apparatus is easily made at a very low cost, and the writer trusts it will be of as much service to others as it has been to him.



MARY H. MULLEN.

CARE OF EXPOSED FILMS ON EXTENDED TRIPS

By GEO. D. JOPSON.



URING the summer months a number of camerists take long journeys to remote parts where it is inconvenient to develop, or have their films developed.

Upon their return home they may possibly find, after developing the films, lines running the length of the film, or the imprint of the exposure number on the film, caused by long contact with the outside paper.

The following method, which I have used repeatedly, has proven a great success. After the film is exposed and removed from the camera, take it into a darkroom, or else wait until night, and unwind it to where the film is fastened to the paper; then cut the paper off, not the film, rewind the film, after which wind the paper cut off, back on to the film. One of my friends who uses this method brought films from the Hawaiian Islands and every one developed out perfect. Another mailed his films to me from Florida, and every roll was excellent. Those who make extended trips of two or three months, or more, bringing their films back to develop, should try this method.

If tank development is resorted to, then before developing take the film into the darkroom, unwind to where the paper has been cut off and fasten paper back in its place with gum, rewind, after which it will be ready to wind up in the apron and place in the developing tank.



BOONTON FALLS.

W. H. BROADWELL.

COMMON ERRORS OF BEGINNERS

By FRANK M. INGALLS.



WHY are not my photos always good? We often hear this remark from a beginner. He simply knows that his results are seldom what he expected they would be.

In the first place, select the camera with the best lens that you can afford. This places the responsibility upon the operator from the first. If the camera is all right that is a long way toward perfect results. No camera or lens will do everything, they all have their limitations. Select some good standard size camera, as supplies for standard sizes are always available in the stores of any good sized town almost anywhere in the civilized world.

Choose some congenial branch of the work as soon as you become familiar with the use of the camera, and you will find more pleasure (and sometimes profit) in this than in the usual haphazard way of snapping everything.

Having the camera, sit down and study it with the instruction book in hand. Be sure that you know what all the adjustments are for and how and when to work them. If you contemplate a journey be sure to get your camera some time in advance, and practise up on a few exposures and have them finished before you do too many. I have heard of tourists who spent much time and money to try to get pictures and had forgotten just one thing—to draw the slide!

The most important thing to know in photography is "How long shall I expose the plate?" This depends upon a number of different factors. Some of these are the time of the year; the time of day; the speed of plate; the size of opening in the lens; the color of the glass that the lens is made of; the length of focus of the lens; the color of the light in which the subject is placed; the color of the subject; the distance of the subject from the lens, etc. With all these controlling factors to help spoil our plates it is no wonder that many are discouraged

at the outset. These are not so hard to master if we but go at it systematically. Get a good exposure meter (such as Wynne's) and test the strength of the light every time you make an exposure until you are accustomed to the great variations in the "actinic" strength of daylight. Use one speed of plate and one certain stop in the lens. Constantly changing increases the uncertainty. Begin with a medium speed plate, as it is easier to control. Do not try to make snapshots on these.

One very common cause of failure is "Under-exposure." This defect is caused by inadequate amount of actinic light reaching the film to produce a sufficiently thick deposit of metallic silver when reduced by the action of the developer. In order to make a good printing negative, the silver deposit must be of just the right proportions all through the varying gradations of light and shade to bring out the lights and shadows that were in the subject. Ortho- or Iso-chromatic plates or films give much better interpretations of colored subjects than do the ordinary plates. They are more sensitive to all light, and great care must be exercised in their use that they do not become fogged.

Another very common cause of poor results is "Overexposure." This is usually noticed in photos taken at the seaside in summer, for here the light is much stronger, and the average amateur knows little about stopping down the lens, and even when he tries to do this he forgets to open it again when away from the strong light. There is a great lack of understanding as to the difference between a "time" exposure and a "snap-shot." All exposures consume an appreciable amount of time, however brief it may be. For example, the ordinary snapshot is about 1-25 of a second—25 photos in a single second! Suppose this is the correct exposure for the light and subject at hand. Now, some will say "I made a *time* exposure of *about three counts!*" Just think of the many, many times too much this would be! Probably three counts was as many seconds, and 25 exposures to a second would be 75 times the normal amount for correct exposure! Usually when a little more exposure is desired, it will be found sufficient to set the shutter to "time" and press the button "just on and off" as gently as possible, being careful not to move

the camera. All exposures that are not strictly snapshots will require that the camera be placed on a tripod or some solid base. An exposure of 1-25th of a second is as long as the exposure should be when holding the camera in the hand.

Be sure to turn the film along after the exposure has been made, and the camera is always ready to "focus and snap" on the next object. One should be so familiar with his camera that he will use it correctly without thinking much about its adjustments.

I have just reviewed the above as a help to those who have never used a camera, but the following will be appreciated by more advanced amateurs, as sometimes it is a puzzle to know what to do to overcome difficulties.

PINHOLES. Small, clear, transparent spots in negatives are usually caused by dust that settles on the plates. This is seldom a fault of manufacture, but dust will get into the boxes after opening ; it will settle on plates when loading or unloading. Hypo dust floating in the air of the dark room is the worst trouble; hypo and other solutions are spilled on the floor, and when dry dust is stirred up and settles everywhere. Comet-ink spots are caused by particles of dust on the plates in holders that leak light at the end where the slide is drawn. The light enters and spreads all over the plate, and each dust particle casts its shadow which is the "comet's tail." The inside of the camera should be wiped out occasionally with a damp cloth. If dust settles in the camera it will be set in motion when the bellows are drawn out and be liable to stick to the plate. Do not use a brush to dust plates; a piece of velvet over the edge of a straight stick is much better if carefully drawn across the plate as a squeegee would be used.

AIR BUBBLES. Another class of spots resembling pinholes is caused by air bubbles, which prevent the action of the developer in little round spots. It is always well to pass the fingers lightly over the plate as soon as it is immersed in the developer. If the plate is soaked in water for a few minutes before being put into the developer it will almost always cause this trouble.

UNEVEN FLOW OF DEVELOPER will cause a variation in the thickness of the negative which cannot be equalized when once started. This is caused by using too little developer so the



A PERILOUS CALLING.

C. E. WANLESS.

plate is only partly covered at first. Even development requires that all of the development start at the same time.

MOTTILING. Mottled or wavy appearances in the negative are caused by not rocking the tray sufficiently during development, or the fixing is incomplete. The appearance of a regular figure all over the plate is caused by washing in too warm water, which swells the film.

ELECTRIC MARKINGS. These often occur in cold weather and have no remedy, but may be prevented by slowly turning the film instead of doing it at the usual speed. They resemble frost work on a window-pane or a bunch of sea moss. A similar appearance is caused by a fungoid growth in the gelatine when plates have been stored for a long time in a damp place.

FOGGING. Fogged negatives (lacking contrast) are caused by light which reaches the plate or film in some way other than when the image is made. Leaky cameras or plateholders are responsible for a lot of poor work. Poor or leaky dark room, developing too near the dark room lamp, using developer unsuited to the particular brand of plate being developed, old plates, and sometimes over exposure cause fogging.

FRILLING or puckering of the film causing it to loosen at the edges of the glass, or sometimes to wholly leave the glass, is caused by using developer that is too warm, or it may contain too much alkali. It may be caused by too great changes in the temperature of the various solutions, too strong hypo solution, too much time in warm water when washing, handling too much during development, air too warm in dark room. When this occurs from any cause it may be stopped from spreading by gently washing and placing in the following bath:

Alum	1½ oz.
Water, up to.....	20 oz.

Soak in this for 5 minutes and then wash thoroughly. It may then be further developed if necessary.



AN OLD ALBUMEN PRINT.

CHARLES E. FAIRMAN.

AN OLD ALBUMEN PRINT

By CHARLES E. FAIRMAN.



FOR those who are interested in a comparative view of the many steps and long distance traversed along the path of photographic research, from the time when the rudimentary photographs were printed from the shadows cast by plants and shrubs upon slightly sensitized plates coated with asphaltum; to the days of the present when printing papers are rapid, and, as we think, nearing a degree of perfection, I am writing this story and sending this illustration.

Deeply interesting to those of photographic tendencies is the part occupied by photography in the erection of the United States Capitol building, or, more accurately, that portion

known as the Extension of the United States Capitol and New Dome—a term used in the appropriation bills to designate the work of the building of the Senate and House wings of the Capitol, and the substitution of the present Dome for the structure which existed in the early '50's. In those days the plans of the draughtsmen were often copied by photographic processes, and frequent negatives were made of the progress of different portions of the work.

The dominating figure around which all of the improvements radiated from 1851 to 1860 was Captain Montgomery C. Meigs, U. S. Engineers, the superintendent in charge of the Extension to the Capitol, and while acting under the direction of the War Department, for the Capitol was then under the charge of this department, Captain Meigs had the confidence of his superiors and of the party in power, and although Thomas U. Walter was the officially recognized architect of the Capitol, it is, nevertheless, true that Captain Meigs seemed to have *carte-blanche*, and was a self-constituted authority upon engineering, architecture, and art matters in general. Exercising as he did so wide a supervision of matters in general, it is indeed surprising that his work was so well performed.

The photographer of the Capitol in those days was one John Wood. From the fact that his pay was the same as that of the draughtsmen, it is evident that his position was one of importance, resembling a profession rather than a craft. To the credit of Captain Meigs, it should be said that his interest in all of the branches of work under his control was more than perfunctory, and his long communications with painters, sculptors, architects and engineers, reveal him as a man of pronounced ability, and possessed of a faculty of getting down to the elemental condition of the affairs under his charge.

I am sending an extract from one of the many letters which prove this quality. In the midst of his strenuous duties he had found the time to dabble with photography, and had sent samples of his work to a friend residing in Philadelphia, Coleman Sellers, who in a letter in reply under date of September 11, 1859, sends a stereogram printed upon albumen paper, one-half of which is sent as an illustration. From this letter I am furnishing extracts:



TITO.

Copyright, 1908, H. B. Congers.

HARRY B. CONGERS.

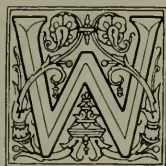
"I have been experimenting with a new toning bath which seems to me to work wonders with albumen prints. I am sending you one that you may judge of the tone produced. Process is thus: Print a good deal darker than usual, almost to the coppery stage of reduction. Throw the prints from the frame into a dish of water containing a little chloride of ammonium, let them lay in this until you are done printing for the day. Wash them in running water to take off the salt. Make a toning bath thus: 12 grains of chloride of lime in 12 ounces of water, shake well and strain through cloth, add 5 grains of chloride of gold in one ounce of water. Lay your prints in one by one. By the time you have about thirty in you will find that the first one is toned, which will be in less than one minute. Turn the prints over and put them, one by one, in a plain hypo bath to clear. It is essential that all the free nitrate of silver be removed before toning."

The photograph submitted has been attached to the letter from which this extract is given for over fifty years. The bath used, judging from this sample, was well compounded. The picture itself gives us the typical working man or machinist of half a century ago.

It may be that albumen paper will some day "come back." It may be that it will not return to the use to which it was formerly applied, but that like the despised gum bichromate process, abandoned for carbon printing, it will be revived for the means of photographic art expression, rather than a medium of accurate reproductive printing. If this should be the case, or if it should happen that some experimenter in search of novel effects should resort to the use of albumen paper, the formula given above, which has stood the test of more than fifty years, will commend itself by its simplicity.

STEREOSCOPIC PHOTOGRAPHY SIMPLIFIED

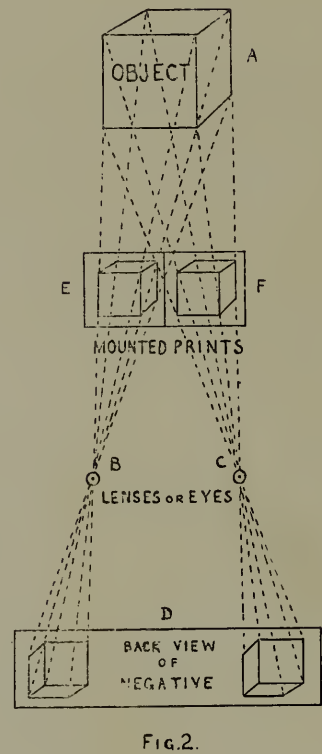
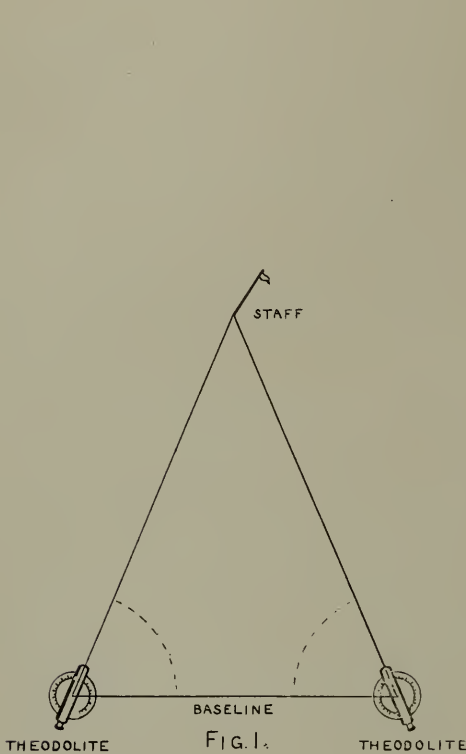
By A. LOCKETT



WHY do we see Nature in relief, instead of everything appearing flat as in a picture? Briefly, it is because our eyes form two distinct and slightly different images of the view or object placed before them. These two images, each having trifling yet important variations, are combined together in a wonderful manner by the brain, which in a single instant automatically constructs a mental picture of the scene or object in which the true distance, proportion, and relief of every detail are unerringly appreciated.

The method in which this automatic mental calculation is made may be partly understood by comparing the action of the two eyes to that of a surveyor estimating distances. Having chosen and measured off a baseline, he sets up a white staff at one of the distances it is desired to ascertain. He next takes an instrument called a theodolite, a kind of telescope moving on a circular, graduated scale and mounted on a tripod stand. This is set up at one end of the base line, the telescope being moved horizontally till the white staff comes against the cross-wires with which it is provided. The angle which the telescope makes with the baseline is then read off on the graduated scale. The telescope is now transferred to the other end of the baseline, the angle which it makes when the staff is sighted being again recorded. The surveyor has then obtained three factors which, taken together, infallibly give him the distance and exact position of the staff, namely, a measured baseline with an angle at each end. He has only to draw the baseline on the plan, to any convenient scale, and to make similar angles at the two ends. These angles, when produced, will meet each other, forming a triangle, which will show to scale the precise distance and position of the white staff, this being represented by the top point or apex of the triangle. (See Fig. 1.)

To obtain a complete survey of any district a number of these triangulations are made, the sides of the first triangle being used as the baseline of others, and so on. Each set of results is carefully entered in a notebook as taken, and all are finally plotted out on the finished plan or map.



Now, there is really a close analogy between the surveyor's operations and the phenomena of ordinary human vision. Suppose we call the distance between our two eyes the baseline, and consider the eyes themselves as theodolites. Let the eyes be directed to a distant white staff, or any similar object. What is it that happens? Obviously, the only thing that can occur, unless we are to see a double image of the staff, is that the eyes must each turn inwards, so that they are both directed towards the same object. They are, in fact, converged together on the white staff in just the same way as two theodolites would be, if both were in use simultaneously on one baseline by two separate surveyors. The brain, that marvelous automatic surveyor, instantaneously completes its problem of triangulation and obtains accordingly a truthful impression of the distance and position of the staff.

But, you will say, this only applies to one object at a time, whereas in any ordinary view or landscape there are many objects, at widely varying distances. How is it that we see them all at a glance in their exact relative positions?

The reply is simple, however astounding it may seem. The eyes perform their function of convergence, and the brain makes its calculations with such incredible swiftness that it is possible for each object to be considered separately, one after the other, yet altogether in but an inappreciable fraction of time, so that the mind knows no interval. You are aware how, in the cinematograph, a number of slightly different photographs flash past the spectator in a second, so quickly that only one continuous picture is seen. In somewhat the same way, yet immeasurably faster, the many surveys and triangulations are carried out by the eyes and telegraphed to the brain, so rapidly that no break occurs, and but a single harmonious mental impression is produced.

The aim of stereoscopic photography is to create artificially a sensation of distance and relief similar to that appreciated in Nature. Two photographs of the object or view are taken from standpoints having about the same separation as that between an ordinary pair of eyes. These two similar, yet slightly different, photographs are made to combine by the prisms or lenses of the stereoscope, which have a converging property, while, at the same time, each eye is permitted to see only its own proper picture. As a result, the exact modelling and relief of the original are reproduced with startling fidelity and realism.

This may be better understood by reference to Fig. 2, in which a cube, A, represents the object. The dotted lines indicate the rays of light proceeding from the different parts of the cube, and explain the manner in which the pair of camera lenses, B and C, form two inverted and slightly dissimilar images on the plate or negative D. It should be remarked that the object is shown unusually near the lenses, and that the latter are separated in a greater proportion than would ordinarily be the case, in order to make the diagram clearer. If we now obtain two prints from the respective halves of the negative, mount them side by side as illustrated at E and F, and place them at the same distance from the eyes as the

lenses were distant from the plate when making the exposure, we shall exactly reproduce the conditions necessary for the perception of relief, excepting only that of superposition; since the various points of the images in the two prints are placed in precisely the same positions as those formerly occupied by the corresponding light rays on their way to the camera objectives. In proof of this, it will be noticed that the angles and arrangement of the light rays entering on one side of the lens are duplicated by those emerging on the other side. We now merely need a stereoscope, with prisms or lenses of suitable focal length, to cause the two photographs to coalesce, and perfect relief is at once obtained.

The two photographs may be taken by a pair of similar lenses, placed about $2\frac{1}{2}$ inches or $2\frac{3}{4}$ inches apart; or, which is just the same thing, in the case of subjects that will not move, two exposures may be given with one lens, shifting the position of the camera to the necessary extent between the exposures. A quarter-plate hand-camera is very convenient for the latter method of working, and excellent results can be obtained in this way; a great merit of the system being that no preparation is necessary, and that the ordinary use of the apparatus is not interfered with. The number of suitable stationary subjects is far larger than might be supposed, and satisfactory level supports for the camera are fairly plentiful. First, with regard to subjects, to suggest only a few among many that are possible with a single lens, we may attempt architecture, exterior and interior; night photographs; early morning street scenes taken before the busy world is about; flowers, fruit, sculpture and statuary; woodcarving; ornamental metal work; quaint furniture; machinery, anatomical preparations and similar objects of scientific interest; or archaeological and record work. A stone ledge or wall, a broad-topped fence, a flight of steps, and such-like resting places for the camera offer themselves on every hand to the town-worker; while, with a little ingenuity, substitutes for these may be discovered in any country walk.

The simplest manner of keeping the camera in alignment for the two exposures and of obtaining the correct separation, is to carry a straight strip of cardboard about two inches wide, and as long as the width of the camera, plus $2\frac{3}{4}$ inches. Thus,



IN CAMP.

John A. Johnson.

if the camera is $4\frac{1}{2}$ inches wide, the strip should be $4\frac{1}{2} + 2 - \frac{3}{4} = 7\frac{1}{4}$ inches long; $2\frac{3}{4}$ inches being marked off with a black line, as shown by Fig. 3. Having chosen the point of view and obtained a level of support for the camera, the latter is adjusted till the view in the finder, or on the screen, gives satisfaction. The strip of cardboard is then placed in front of the camera so as to touch the bottom edge, and is weighted with a couple of small stones, or other heavy objects, to prevent it shifting. For the first exposure the camera should be

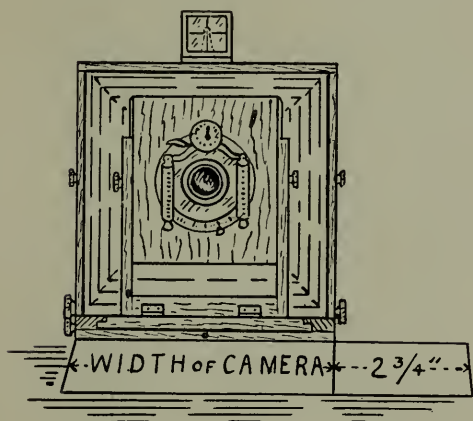


FIG. 3.

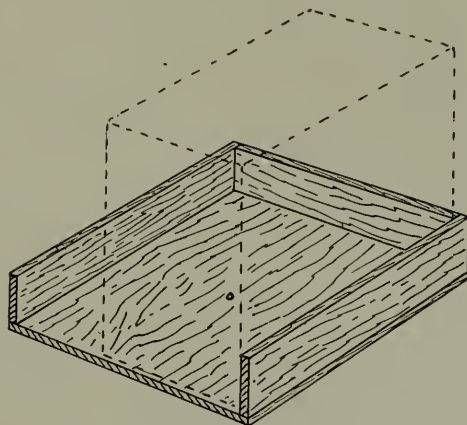


FIG. 4.

placed as indicated in the illustration; while for the second, of course, after changing the plate, it is moved to the other end of the cardboard, taking care to keep it against the edge as before. It is even possible, when a measured card is not at hand, to guess the degree of displacement to give the camera, and to keep it in line by moving it very cautiously; but this is a rather risky proceeding.

A very useful little accessory, which anyone can make from an empty wooden chocolate box, is that known as the stereoscopic tray (Fig. 4). It is simply a shallow three-sided rectangular tray, slightly longer than the camera and $2\frac{3}{4}$ inches wider inside. It may be employed with almost any kind of apparatus, with or without a stand. If used on a stand, a hole must be made in the centre to take a bush for the tripod screw. To use the appliance, the camera is placed in the tray and pushed close against the front and one side, as shown by the dotted lines, the first plate being then exposed. The camera is next shifted to the other side of the tray, taking care that

it is again kept close to the front and against the side, and the second exposure is made.

Another simple method for obtaining stereograms with one lens is as follows. Many stand cameras have a liberal allowance of cross-front movement. By moving the front as far as it will go in one direction for the first exposure, and as far as possible the opposite way for the second exposure, we shall get a tolerably good separation without moving the camera at all.

The foregoing methods have been given because they require no special apparatus, but of course it is not intended to deny that the orthodox stereoscopic camera with two lenses is more convenient when obtainable, and permits a much wider choice of subjects.

When working with a single lens, it will be as well to number the plates before exposure, and to make a note whether the right-hand or left-hand negative is taken first; this saves trouble in identifying them afterwards. The two exposures should be identical, and each pair of plates should be developed together for the same length of time. The development of stereoscopic negatives calls for no special remark, except that hardness and chalkiness should be shunned since this defect shows up objectionably in the stereoscope. The prints are best made on glossy P. O. P. or bromide paper. A slight difference of depth or tone in the two prints is not of much consequence, but it is better to get them alike if possible.

The trimming and mounting are what seem most to perplex the worker who is making his first acquaintance with stereoscopy. If the negative was taken with a pair of lenses on a single plate, the prints must be cut apart and transposed before mounting; the right-hand print of the pair being mounted on the left, and the left-hand print on the right. If they are marked in pencil on the back before cutting no confusion can occur. In the case of separate negatives obtained with a single lens, it will be necessary, as before directed, to note the number of each plate at the time of exposure, and whether it is exposed to the right or the left.

The prints from the negatives are marked to correspond, and are mounted as they are marked, *not* transposed. About $2\frac{3}{4}$ inches wide is the average width to which the prints



SONS OF THE DESERT.

LOUIS J. STEELE.

should be trimmed. They are frequently cut wider than this, but such slides cause more strain on the eyes during inspection. The height is not so material; 3 inches is about the average, while $3\frac{1}{2}$ inches to 4 inches is perhaps the limit with the ordinary pattern of stereoscope. In trimming, care should be taken that vertical lines are upright, and that corresponding points in the two pictures are horizontally level with each other. The right-hand picture should be trimmed to show a little more of the subject to the left, while the left-hand picture should show a trifle more to the right. Although it is quite customary to mount the two prints close together, the best effect is obtained by leaving an interval of about $\frac{1}{8}$ inch between them. Dark mounts are decidedly best.

In selecting subjects for stereoscopic photography, due regard should be paid to the special quality that should distinguish a good stereogram, that is to say, the natural and unstilted rendering of distance and modelling. It hardly needs pointing out that subjects which possess little or no relief in themselves, or but slight variety of distance, are quite unsuitable for the purpose. It is desirable, as a rule, that there should be some isolated object in the near foreground, since this helps greatly in the illusion of scale and perspective. For instance, according to the nature of the subject, a stationary vehicle, a figure, a near pillar or column, a tree-trunk, or even a lamp-post, will be of value if judiciously placed. There is as much need to aim at obtaining good composition, suitable lighting and a true rendering of tone values and atmosphere in stereoscopic photography as in ordinary work, and due attention to these points considerably enhances the ultimate effect of relief. For making stereograms to be inspected with the ordinary pattern of stereoscope, the lens or lenses should preferably be of a moderate angle and of about five inches focus. The lenses ordinarily fitted to quarter-plate cameras, therefore, answer very well. It may be noted, in conclusion, that if flat films are carried instead of plates it is easy to print one of the pictures reversed, as required for the "Pigeon" or "Dixie" stereoscope.



PORTRAIT.

C. F. Townsend.



PORTRAIT.

WILLIAM GILL.



SNOW CRYSTALS.

WILSON A. BENTLEY.

RETROSPECTION

By WILSON A. BENTLEY.



THE past winter has rounded out the writer's quarter of a century's work within the field of snow crystal photomicrography. As we look backward we recall the beginnings of our study, the early struggles and failures, the lack of means and appreciation, the final success, the long years of tedious work, yet to us a labor of love. And we recall further the months (in the aggregate) spent under the chill winter skies, in calm and tempest, chilled oftentimes to the marrow, yet unmindful of it, so absorbed were we in catching on our blackboard those peerless snow gems from on high. And, oh, those other months spent indoors within the frigid air of our photographic exposure room, how full of pleasure and thrills the moments were, filled as these were with glimpses under the microscope of these hitherto unseen marvels of the crystal world, and of hours spent in the photographing of them. And then the innumerable hours spent within the dark room, developing, what delightfully expectant tasks they were, what pleasure to watch those wondrous crystal images come out, under the seeming magic of the chemical baths. And we recall, furthermore, how, as the years went by, our collection of photomicrographs of snow and frost, and later of dew, ice and other forms of water, grew from year to year, until they came to number thousands



PORTRAIT.

WILLIAM GILL.

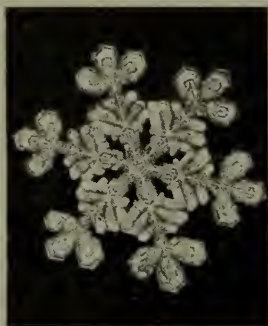
—a truly marvelous collection—and to eventually meet with an appreciation beyond our utmost dreams.

Surely we have reason to doubly bless the hour and the kind Providence that directed our steps into so charming and novel a field of photographic endeavor. The inference to be drawn from our experience is obvious. Have some photographic specialty or hobby, and pursue it persistently. The pleasure to be derived therefrom will be ample reward, even if nothing of great interest or scientific value is pictured in the photograph.

Singularly enough, the past winter's storms, as though to make notable the close of our quarter century's work, showered down an unusually large number of beautiful choice forms to our waiting camera. I wish every reader of the



DEW ON GRASSES.



WILSON A. BENTLEY.

ANNUAL could see and enjoy these latest masterpieces of the snow artist.

It is rightly assumed that articles in the ANNUAL should be helpful, rather than reminiscent or descriptive. As I look back in retrospect at the difficulties met and overcome, while engaged in photographing the various forms of water, I am wondering what hints and bits of my experience would most likely be of most value to ANNUAL readers. Possibly some additional hints regarding dew and frost photography may be helpful and welcomed. I gave a sketch of this delightful early morning's work in the last ANNUAL, telling, among other things, how it is possible and oftentimes best, to remove dew and frost-laden objects from their natural environment, where the background and lighting is oftentimes unsatisfactory, and to re-

arrange and photograph them before an artificial (dense black) background. Doubtless all dew photographers have noted how troublesome the early morning breezes are, how they agitate the objects, even when so arranged, causing blurred images. An artificial glass enclosure, made by sinking three lights of glass in the ground in the form of a square, with opening toward the camera and using the fourth one as a cover, will overcome this difficulty. When breezes trouble, the air space between extension camera and glass enclosure can be bridged over, and all made tight by laying a focusing cloth from the camera to the front edge of the glass enclosure.

Delicate and easily breeze-shaken plants and other objects, even sections of the filmy garden spider webs, caught on a wire loop smeared with Canada balsam, may be rearranged within such an apartment and easily photographed even when breezes are strong. Should the dew collect over night, as sometimes happens upon the glass facing the camera, and between it and the black background, it must, of course, be carefully wiped off, as it would destroy the even blackness of the background. A pail, painted black inside, and placed at the proper distance from the back of the object, and facing the camera, makes an ideal background for most objects. A vise, made of two flat and slender pieces of thin board nailed together in the middle and sharpened at one end, so that they can be stuck into the ground and remain upright at any desired angle within the glass enclosure, will serve to hold the dew or frost-laden objects to be photographed. In the case of frost, care must be taken, of course, to handle the stems of the plants as little as possible with the warm bare hands, as it destroys their frozen rigidity and makes it more difficult to make them remain upright when placed in the wooden or other vise.

It should not be overlooked, however, that the dew and frost collects interestingly, not only upon vegetable objects, etc., but also upon insects. And not the least interesting branch of the work is to so arrange and fasten insects over night upon flowers and grasses, by means of fine threads wound around them and around the flower stalk upon which they rest, or by sticky materials or otherwise, so that they may be made to pose of a dewy morning for the photographic camera.



DEW.



WILSON A. BENTLEY.

There is a peculiar zest in the work, especially to those who are satisfied with nothing short of the very best in whatever they undertake. The long morning quests for a plant leaf or object containing just the right burden and arrangement of dew, or hoar frost, will be found to be full of delight and surprises to all who may essay to do this delicate and charming photographic work.



ON THE ST. JOE.

R. E. WEEKS.



ELBERT HUBBARD.

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PHOTOGRAPHY AT NIGHT

By H. H. BROOK.



WHY is it that so few photographers take advantage of the artistic possibilities of the night, when, by the help of artificial light, objects are grouped and massed with a splendid absence of the meaningless details that are met with in day scenes, and which oftentimes destroy an otherwise pleasing arrangement?

In night work I suppose the chief drawback to a beginner is the length of exposure required and the scanty means of ascertaining it, but although an exposure meter cannot be used, yet a study of prints from negatives of night views—the length of exposure, speed of plate, the distance, probable strength and color of the illumination will help a great deal, and after a few trial exposures one should be able to estimate it with fair accuracy.

Any camera fitted with a screen of the same size as the plate will do, although the ordinary magazine camera with the diminutive view finder will serve, providing one has good judgment and plenty of patience. A fine-grained focusing screen is necessary when the light is very poor, but oil or vaseline can be rubbed into the grain of a coarse one to improve it. Of course, the larger the aperture of the lens the less the exposure, but F.8 is a fair average.

The fastest plates are best, not only in speed, but they tend to give less contrast than slow ones, and they should be backed and a normal Rodinal developer used. Excessive contrast, halation and reversal of the lights are sure to be met with, but a proper exposure, fast plates (backed) and a developer which tends not to give contrast, will help to keep their faults under.

The negatives can often be improved by applying matt varnish to the shadow or other portions it is desired to hold back, or soot from a lighted candle can be used instead, working on the glass side, of course.



PORTAIT.

Mary Carnell.



A WET STREET.

H. H. BROOK.

*Field Camera F.8., Rodinal Dev. Exp. 3
min. Barnet, Extra Rapid Ortho. Plate.
July, 9:30 P. M.*

Halation, and too dense high lights may be somewhat reduced by friction by using a flat cork, covered with a piece of cambric moistened with methylated spirit, or one part olive oil, two parts "Globe Polish," or the rag can be moistened with "Shino" metal polish. Rub lightly and in every direction over the parts it is desired to reduce.

Will the reader please note the data of the illustrations, and if the 1910 ANNUAL is at hand, on pages 240, 244 and 247 will be found other prints of interest. Page 240 "Night on Water," No. 2 Brownie Exp. 10 minutes. Dev. Rodinal, March 9.30 p.m.

Page 244, "Lights of the City," "Field Camera," "Gladiator" plate. Exp. 10 minutes F.8. Dev. Rodinal, November 8.30 p.m.

Page 247 "Field Camera" "Gladiator" plate, Exp. 10 minutes, at F.8, February 8 p.m.



DUCKS ON THE SHORE.

F. C. BAKER.



AT REST.

H. H. BROOK.

*Hand Camera, F.8. Exp. 1/10th Sec. Bar-
net Special Rapid Ortho. Plate. Rodinal
Dev. February, 5 P. M.*

THE AMERICAN FEDERATION OF PHOTOGRAPHIC SOCIETIES

By C. C. TAYLOR.



CONVERSANT with the growth of pictorial photography, its possibilities and needs, and wishing for an adequate way to recognize, foster and help the movement, a few camera clubs of a generous and progressive turn of mind, have formed the American Federation of Photographic Societies to supply the above wants. This article will attempt to tell what the Society is doing.

The big task of the Society is to assemble, manage and route the AMERICAN SALON and there have been six successful ones, with the seventh now on the road.

Up to this year, foreign work was shown in a more or less number, but in the seventh salon only American Pictorialists were invited to participate. This was in no sense a disapproval of the foreign work, but rather that with the best of both foreign and American work it made a Salon of unwieldy proportions; made it too large to travel conveniently, to be hung to good advantage, as well as give proper care and safety to the frames exhibited. So it was decided to restrict the Salon to the works of our own country, and to reduce the number of accepted prints to two hundred or less.

The question is often asked: What does an exhibitor get for his toil, thought and time in producing pictorial work and exhibiting in the American Salon?

First, he has an incentive to do his very best, an incentive that leads him to put the imprint of his own personality upon his efforts; to give the world an idea of what he feels, of the moods he experiences, of the breadth of his perceptive powers, of the strength of his imagination, of the light he sees, knowing that there is a place where such efforts will be appreciated, and applauded according to the strength he has shown.

Then all work submitted is passed upon by a jury of eminent men, men who have won their laurels by their works and deeds



WINDING ROAD.

Wm. T. Knox.

and who are thoroughly qualified to render judgment. I want to say here that in the past the juries have taken all work submitted seriously and have given their true judgment without fear or favor, and any entrant who has been unsuccessful can rest assured that all prints were rated according to their individual merits. This fact should be of incalculable value to them, as it shows that there was something weak about the print, that there was room for improvement, and, if he is wise, he will make it his business to discover and remedy the weakness.

The jury of the sixth Salon should give an excellent idea of the class of men who pass judgment upon the submitted work. Three directors of Museums of Art, Messrs, A. H. Griffith of Detroit, Wm. Henry Fox of Indianapolis and Geo. W. Stevens of Toledo, and three painters of international prominence and fame, Messrs. John C. Johansen, Edmund H. Osthaus and George Da Maduro Peixotto. Men of such rank give their judgment candidly, intelligently and honestly, and it should be comforting and encouraging to all entrants to have their work passed upon by such men.

The seventh Salon will be shown for seven months in the principal cities and Museums of Art in the country, including:

The Carnegie Institute, Pittsburg.

The Art Institute, Chicago.

The Museum of Art, Detroit.

The Museum of Fine Arts, St. Louis.

The Museum of Art, Toledo.

The Herron Institute, Indianapolis.

And at Philadelphia, Jamestown, Racine and possibly at Washington, Baltimore and Denver.

Our art loving and art appreciating people go to Museums of Art to see Art, and successful entrants in the American Salon have the satisfaction and honor of having their work hung where it will be seen and appreciated by the knowing ones, and he is known as one who has done something worth while.

So I believe that every pictorialist is well repaid for his efforts, that the price is sure and enough, that, while he is giving the world action, feeling, moods, color and thought, while he is delving for these, he is awakening latent powers within himself, and he is growing upward and onward just a little ahead of those he is enlightening.

The officers of the Federation are selected from one of the sustaining clubs and all from the same city to better facilitate and concentrate action and these officers give of their time and knowledge freely and without one thought of any personal returns.

The present head, Mr. Stevens, is a man who knows organization as well as art, and, further, he knows why he knows. A better or more efficient man it would be hard to find and, while he is giving much of his time and all of his knowledge to the movement, he cannot give the frames necessary to make the Salon a success—that rests entirely in the hands of the American Pictorialists.

Every effort has been made to have our pictorialists submit their work, regardless of what school, class or medium the worker may be identified with, trusting to the jury to give its decision on the merits of the individual print, and which is the only possible solution of the problem of what constitutes and is incorporated in the term pictorialism.

The sixth Salon gave us excellent reasons why the above plan should prevail. We have in our possession letters, newspaper clippings and memories of individual visits and talks wherein some work that was hung in the sixth Salon was severely criticized in the East, yet the same work was liked best in the West, and vice-versa.

We have a large country, thickly populated with intelligent and discerning people, whose tastes will differ, whose element of sublimity is expanding and who are now viewing art with a growing enlightenment and they do not give to one school all that is good, but, rather, see good in all schools and that is the mission of the American Salon: to collect the best of all schools, classes and mediums in one exhibition, with no possible harm to any one.

That the movement is on a substantial basis, that pictorialism is receiving its proper recognition in the world of Art, is shown by the fact that the seventh Salon will be hung almost exclusively in Museums of Art. They are asking for it and only the time limit is responsible for it not being hung in more of them. The management can assure those interested that the eighth Salon will be hung in the Metropolitan Museum.



CONTINENTAL DIVIDE.

F. L. DOUGLAS.

There is no entry fee to be paid by the entrant, but he must put his work in the hands of the committee without expense to the Federation and all expenses of the Salon are met by the clubs in the Federation, Museums of Art were hung, and by advertising.



WHERE LIGHT AND
SHADE REPOSE.

J. W. HODGES.

MODIFIED TANK DEVELOPMENT

By MALCOLM DEAN MILLER, M. D.



TANK development, as usually practised, is open to some grave objections. Especially is this the case when formulæ requiring prolonged immersion are used, for in such an event chemical fog, stain and softening of the emulsion are prone to occur. I once left a batch of undertimed plates in a cool darkroom all night, only to find in the morning that sufficient heat had been generated by the chemical action to melt all the gelatine from the plates.

Another defect in the newer method of developing for a short stated time, as twenty minutes, is that if any of the plates are over-exposed they are likely to develop too far. Under-exposures, on the other hand, are profitably treated in the weak tank solution; for such a solution is capable of bringing out everything on the plate, though not always in the stated time. After many trials with all sorts of formulæ, I have settled down to what I call modified tank development, because I am convinced that no system of development by time and temperature, without inspection, is able to give the best possible results from varying exposures. Even with an actinometer, one is often obliged to give a time which he knows is a little over, or a little under, and, in this event, I believe the best negative can be had only by inspection.

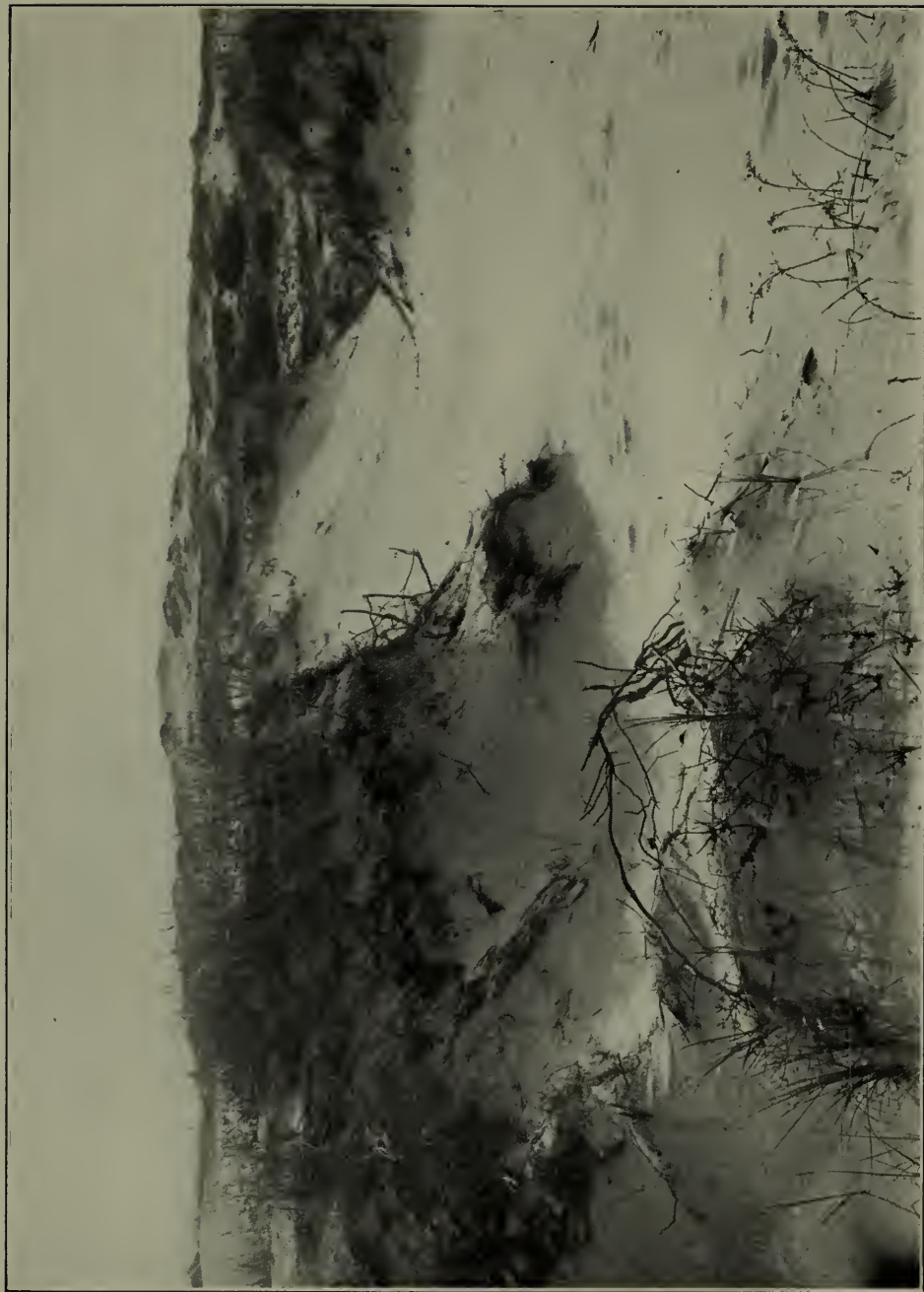
This modified development I use only for convenience when I have six, or a dozen, plates to develop in one batch, for tanking plates is a nuisance with a smaller number. The tank I use is provided with a removable rack. After loading it I lower it into the developer (in darkness), move it up and down a number of times to break up air bubbles, and then close the cover. At the end of ten minutes I lift the rack (in darkness) and briefly examine the plates one by one in the ruby light. If any prove to have been too fully exposed, I take them out at once, and slide them into a washing-box through which water is running, covering with a light-tight cover. Then I

stir the developer thoroughly by raising and lowering the rack several times, and retire for another ten minutes. Correctly exposed plates will be done in say twenty minutes, and these are removed to the washing-box as before. Ten minutes more will do all that can be done for under-exposures. After all the plates are well washed I transfer them to the fixing-box.

Such, in brief, is the modified method, and I know from experience that it gives better negatives than the plan of developing all for a fixed time. The results depend largely on the use of a suitable developer, the best I have ever found being glycin. This is supposed to be a twenty-minute formula, but the time depends on the plate used and the temperature, and can be accurately determined only by experiment. The excellence of this solution is due largely to the fact that it contains little sodium sulphite, a chemical which in tank work causes chemical fog if present in great amount. Notwithstanding the great dilution, and the small amount of preservative, the used developer keeps for months in a well-corked jug filled to the neck. The stock solution is as follows:

Glycin	120 grains
Sulphite of soda, anhydrous.....	360 "
Carbonate of soda, "	360 "
Hot water	35 ounces

For use, dilute one part with three parts of water. The method of compounding is extremely important. First dissolve the carbonate in the hot water, next, the sulphite, and, last of all, the glycin. This solution, properly dissolved and used at from 50° to 60° F. will give clear, fog-free, dense negatives from over-exposed plates, and will also develop out full detail in under-timed plates without making the high-lights imprintably dense. A glycin negative has almost ideal printing quality for a great variety of printing processes.



IN THE DUNES.

MALCOLM DEAN MILLER, M.D.



STONEWARE.

J. A. ANDERSON.

PAPER PRINTS FROM AUTOCHROMES

By J. V. ALTENEDER.



THE regret is frequently expressed that paper prints are not possible from autochromes, and it is not generally known that this can be done. Having been an autochrome enthusiast ever since the plate has been available, I have myself felt the desire to translate its beauties to paper, if not in color, at least in monochrome.

After considerable experiment I found that this can easily be done, and now that the Cramer Dry Plate Co., in conjunction with Mr. R. P. Wallace have placed the Spectrum plate and their color filters on the market, there appears to be no good reason why this cannot also be done in color. The method which has given me the best results is to place the autochrome against a window and blocking out the extraneous light by a suitable frame, and then copying it in the camera, using a backed panchromatic plate and the Lumiere compensating screen in front of the lens.

This method permits enlarging to considerable extent without showing any objectionable grain. The illustration accompanying this article was enlarged from a lantern slide to a $6\frac{1}{2} \times 8\frac{1}{2}$ plate, and shows very little indication of grain.

Another method is by contact, placing the compensating screen in front of the autochrome in the printing frame. I find, however, that this method does not diffuse the grain as well as the enlarging method, although this is not altogether objectionable.



STILL LIFE STUDY.

Illustrating article "Paper Prints from Autochromes," by J. V. Alleneder.

J. V. ALTENEDEDER.

OBSERVING THE CONGRUITIES

By C. H. CLAUDY.



THE old idea that the camera could not qualify as a member of the Ananias Club is dead. We who use the lens and plate for pleasure, or a living, know that they can be made to lie, and lie well. It is only a matter of knowledge and practice to make the camera call a tall man short, a thin man fat, a small room large, or to go even further and put a woman's head on a man's body, produce pictures of people in each other's company who never were in the same city at the same or any other time.

With this ability to tell untruths with the camera so readily at hand, it is not to be supposed that the pictorialist would stick to "straight" photography. But what may be an untruth in law, in society and everyday life, may be but artistic license in the pictorialist. No one would accuse you of lying should you photograph a sheet of water towards the sun, with a small stop, and label the result "moonlight." You are not eligible to join that fraternity whose password is "the shorter and uglier word," if you print clouds in a bald-headed landscape and call the result, "The Coming Rain." No harm is done to any one if you take a figure from a group and place it carefully, skillfully, with a due regard to proportion, distance, symmetry and dimension, in the proper spot in a lifeless landscape, and call the result, "Alone."

But if you fake, you must fake truthfully, or bring down upon your muddled head the anathemas of all who love truth for its own sake. Printing in clouds is not telling a photographic untruth. Printing in clouds plainly lighted from the west when the landscape is lighted from the east is a lie—and a very poor one. Making a picture of the sun upon the water and labelling it "Moonlight," is not a lie—if the result justifies the name. If it really looks like a picture of moonlight, it is perfectly ethical so to name it. But the vast majority of pictures so made do not look like anything under the heavens!

They have too much detail for moonlight, and show too strong an illumination to come from the Orb of Night. Their shadows are never Stygian black enough nor are their skies luminous. The result, most so-called "Moonlights," made with the camera, are lies, because incongruous.

You may have seen some of these very cleverly made photographic postcards, in which a farmer, for instance, has a four horse team loaded down with two huge ears of corn, each about fifteen feet long. Or a hunter is about to attack a mighty bullfrog, as big as an ox. Or a man is fleeing for his life from an upset bag of potatoes, each bigger than he is, which are rolling violently after him. Such photographic lies are pleasant as a recreation, or as teasers of curiosity. The man who inserts a figure in a landscape, and doesn't get its proportions right to a hair, deserves no more consideration as an artist than one accords to the makers of these funny photographic fakes. One has failed to observe the congruities because of lack of care or knowledge or thought. The other has outraged the congruities with malice aforethought, and to produce a laugh or puzzlement, and, having succeeded in his undertaking, deserves praise at least for his success.

To include the moon in the "moonlit" landscape is often the ambition of painter and photographer of night. The result is sometimes both astonishing and laughable. Consider a picture labelled "Moonlight." It is dark and spooky. The wind whispers in the pines. The old house is dark and still. One can imagine the wreath of vapor which is surely going to come from the deep wood to the left, in another minute, and perhaps coalesce into a shapeless shape. An eerie beam of moonlight falls athwart the landscape. It comes from the full moon, just rising in the east.

Well, why don't you laugh? Did you, or any one else, ever see the *full* moon rise at *midnight*? That would be exactly the same phenomena, in point of astronomical impossibility, as having the new moon rise in the east, at sunset, or set at sunrise.

One "sees the pale moon" in both photograph and painting, with her horns pointing 'most any direction—up, down, or either side. Yet a most rudimentary acquaintance with astronomy would show the inquirer that the moon is not so

erratic in the matter of getting up and going to bed, and the way she conducts herself when in the sky, that any photographer of average intelligence shouldn't manage to learn the right and wrong way of her appearance in his pictures.

As for the employment of accessories of arts or crafts with which the photographer is not familiar! One sees pretty pictures of girls in canoes, for instance, the lady sitting in the bow, in the canoe, alone, and presumably out for a paddle. The human being who can propel a canoe alone, from the bow alone, is dark of skin, black of hair, and goes half naked and answers to the name of Indian, but he never does it that way because it's the wrong way.

The lady in the kitchen baking a cake has been used before now, and will be again, as a subject for a photograph. And particularly if the kitchen is old fashioned, and the girl pretty, the result usually justifies the effort. But all the girls I ever knew, pretty or the reverse, went into the cake baking business with their sleeves rolled up and a big apron on—never a one of them wore a lace handkerchief with strings for an apron, or prepared the batter in a lace gown with long sleeves. Maybe they do, somewhere, only I have never seen them, and so include this way of making such a picture among my list of incongruities.

As for the picture of the man camping or fishing! Oh, shades of Diana, how many photographic fizzles are developed in thy name! Just why it is that some one who never saw the inside of a tent or a coffee pot should feel impelled to go with a camera, a model and some accessories, and make "roughing it" pictures, the Lord in His wisdom knoweth, but no one else does. I recall with keen pleasure the laugh I had at one such sample sent me for praise—not criticism. It showed a man, presumably camping, carrying a camera. He had upon his back a pack, at least as big as the week's wash of a family of six. He had on every day shoes, his trousers rolled up, showing bare legs, and he was shown crawling through the bush, over rocks!

Any one who needs to be told where the incongruity is, is invited to dress in the same way and go out and scramble over rocks and through briars for a while. He will know, then!



THE SECRET.

HELEN W. COOKE.

I have seen "camp" scenes in which enough camp equipment was shown to fill forty canoes—with two canoes in the picture to carry it. This is all right, if you don't go and label the picture, "The Evening Camp," indicating the party has just disembarked from the two canoes and erected ten tents, two of them with board floors, after a day's run, and for a temporary stop.

And so I might run on for the rest of the book, only the Editor wouldn't like it, and you wouldn't buy it. But, if you think my stricture severe, let me ask you to take your own pretentious examples—photographs for the making of which you prepared for some time, those over which you really worked, and examine them carefully, with an eye wholly to the congruities. If you can find none to be prefaced with "in," you are to be congratulated. If all is not quite as it should be, remember that you cannot be lonesome in that company—but that the time to reform is when you learn of faults!



THREE OF A KIND.

BELLE JOHNSON.



Fig. E.

A. R. F. EVERSLED.

THE TELE-PHOTO LENS AND THE HAND CAMERA

By A. R. F. EVERSLED.



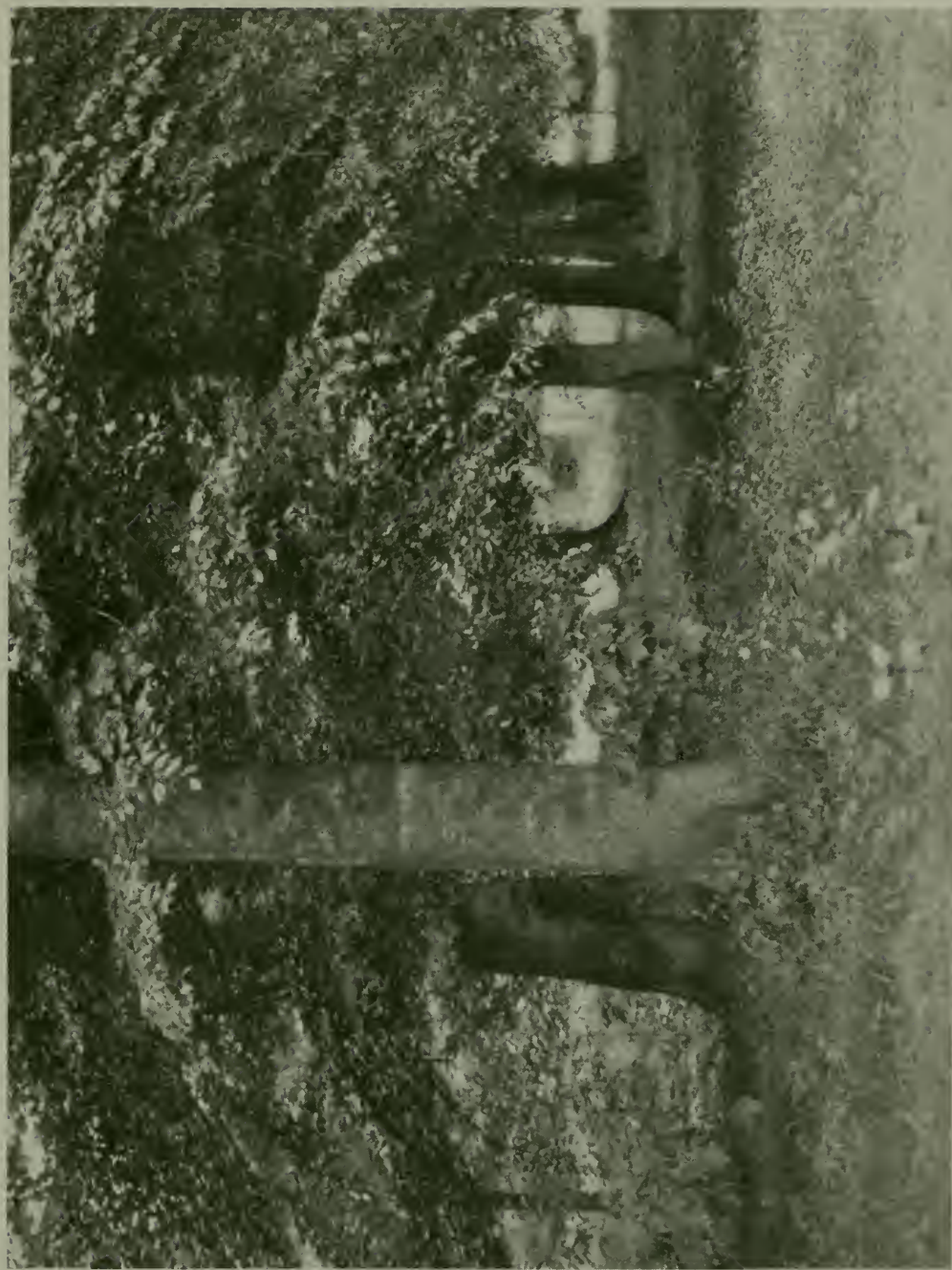
DOUBTLESS there are others in addition to myself who have been attracted by the possibilities of using a moderate power tele-photo combination in conjunction with a hand-camera, but little appears to have been published on the subject, and it is with a view of inducing others to follow up the matter that I write these brief notes.

As plate manufacturers are now producing plates of great rapidity, the disadvantage of small apertures which moderate power tele-photo combinations possess may be considered as negligible, and therefore their great advantage in giving pictures of more attractive quality in the way of drawing or perspective, and in simplicity of subject, can be fully utilized, for the usual pictorial faults which are found in most pictures produced by means of the hand-camera are the large amount of subject shown, due to the short focus of the lens and the want of, or rather, the exaggerated perspective, from the wide angle embraced by such a lens. I grant some say that by enlarging only a portion of one of these pictures the same result is obtained as by using a long focus lens, but practically the effect is quite different.

In the prints which accompany these notes, which prints, by the way, were produced without any idea of using them as illustrations, A—a view of St. Paul's Cathedral from Hungerford Bridge, about one mile off, was taken late one misty afternoon with an Adon and Kl. filter, the aperture being about $F/22$, plate speed as given by the makers 300 H. & D. exposure $1/14$ second, from the negative (quarter-plate) a 10×12 transparency was made, and from this an enlarged negative, and the resulting picture has met with approval when exhibited. B is a picture of the Cathedral from the river-steps below Waterloo Bridge, over three-quarters of a mile from the Cathedral, the lens used was a ten-inch single Hölöstigmat at $F/8.5$ and Kl. filter on a $2\frac{1}{2} \times 3\frac{1}{2}$ plate of same make as that employed for A, the exposure was $1/25$ second, even with this lens, which is three times the base-line of the plate. It will be noted that it is pictorially not so satisfactory as C, which is the result of employing an eight-inch negative attachment to a six-inch $F/4.6$ Holostigmat, the aperture of the combination being $F/11$, the exposure with the same plate being $1/10$ second. A Kl. filter was also used on the lens.

For tele-photo work with a hand-camera a reflex is a considerable advantage, and the lens should be provided with some form of hood, and for outdoor work, especially in misty weather, a light yellow color filter is advisable.

The moderate-power tele-photo lens is of great service also in portrait and figure work, as the combination will give in



A SUNLIT WOODS.

Theodore Eitel.

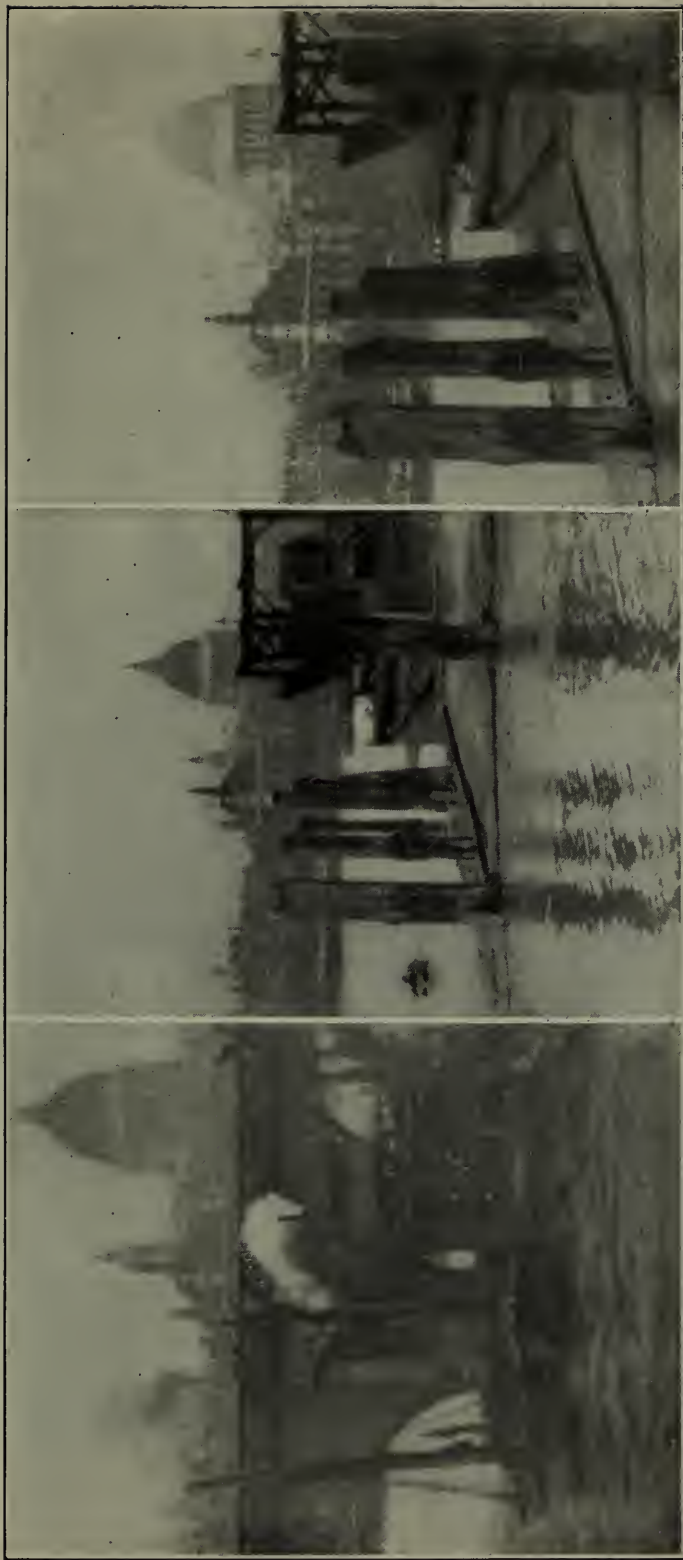


Fig. A.

Fig. B.

Fig. C.

Illustrating "The Tele-Photo Lens and the Hand Camera," by A. R. F. Evershed.

every way a better perspective, and with a short camera extension, this being a considerable advantage when a hand-camera is used for this class of subjects. In the portrait D, the camera extension was 6 inches, the aperture value F/15, and exposure 5 seconds; in E the extension was 8 inches, the aperture F/20 and exposure 12 seconds. In each case a plate of speed as given by the makers of 400 H. & D. was used, with an Adon lens.



THE FINISH.

A. LEONORA KELLOGG.



Fig. D.

Illustrating "Tele-Photo Lens and the Hand Camera," by A. R. F. Evershed.

PROGRESS IN SCREEN PLATE PHOTOGRAPHY IN 1910

By HUGH C. KNOWLES.



HERE have been but few improvements, or novelties, to chronicle in this branch of photography since last year. Autochrome plates have again been very uniform and reliable, though to my astonishment I had some cases of frilling in the summer. The emulsion, too, has proved slightly more sensitive, as plates changed under conditions which have previously proved entirely safe, have this year shown a slight veil of fog.

Messrs. Lumiere have, however, given us a means of reproducing our pictures on other plates in the simple form of a box, holding the plate to be copied and the fresh plate together at one end, and having at the other an attachment for a double spiral of magnesium ribbon, twisted and burning at a regular rate in a spring, the light reaching the plates through a special compensating screen of a different tint and depth to that used for taking the original. This apparatus I have found to work very well, the slight blurring of the outlines proving an improvement in a good many cases of sharply focused and defined pictures.

The fixed point of light, and the fixed rate of burning, make the operation quite simple, the only point left to the discretion of the worker being the length of ribbon to be used, and this one soon learns to estimate correctly.

I have continued my use of autochromes well into the last winter months, and obtained some quite successful results, which have attracted some attention. Personally I like a reflection of a blue sky in a frozen pond most. My experience has shown me that after September the exposure tables I use are not entirely to be trusted, and that a material addition, say of twenty-five per cent. of the time indicated, must be made to ensure a successful result; forcing development, either by strengthening or warming the developing solution, has not



A SNIPESHOOTER.

George F. Holman.

helped me much, as in my hands it always seemed to produce a slight fog.

I now come to the only novelty of the season, the Dufay-Diophichrome plates, which have practically only just come on the market, although announced as ready for some months. These rely on a color screen of regular lines, or rather lines of dots (of red, orange, green and blue violet) running vertically and horizontally, producing a very slightly grained effect, which in most cases is entirely invisible, and when it can be perceived is absolutely unobjectionable. As a rule, the plate must be held at an angle, or under a magnifying glass to see the grain.

The essential characteristic of the plates is an absolutely homogeneous coating without any addition of foreign elements, such as colored grains, varnishes, or fatty inks, having the important advantage of imparting on the screen the greatest transparency and luminosity possible. The selective elements are arranged as minute squares or rectangles regularly disposed, and in perfect juxtaposition, ensuring an even coloration over all the surface of the coating without exaggeration at the centre, or weakening at the edges. There can be no agglomeration of elements of the same color, and the false effect of uneven, or irregular patches is made impossible.

The exposure the Dufay plates need I have found to be slightly in excess of that needed for autochromes, say five per cent. more, though perhaps they show rather more latitude—and in development the usual green safe-light can be used after the first minute, the Dufay plate being slightly slower in development, too, and requiring normally about three minutes for full development at 60 degs. Fahrenheit. A special formulæ is given as follows:

Water	35 ounces.
Metol	90 grains.
Sulphite of Soda, Recrystallized.....	2½ ounces.
Hydroquinone	30 grains.
Potassium Bromide	30 grains.
Ammonia .880°	3½ drams.

This works very well and cleanly, and serves both for de-

velopment and redevelopment. The reverser is very similar to that used for omnicolor plates, and is as follows:

Potassium bichromate	75 grains.
Sulphuric acid	170 minims.
Water	35 ounces.

Up to the present I have had no occasion to use the intensifier recommended, but Farmer's reducer (hypo and ferricyanide) works very well. I have found the plates wonderfully true to the colors represented, even to very slightly varying tints; the whites especially (as well as the flesh tints) are astonishingly good, and with no trace of grain, being in this, I think, superior to autochrome. I cannot conclude this brief résumé without mentioning some autochromes at the Royal Photographic Exhibition of this year, which seem to me to be absolutely the best I have ever seen, either privately, or at shows. I refer to some sunsets over sea and cliffs by Mr. Ellis Kelsey, of Eastbourne. The wonderful beauty and truth of the colors of the sky, as well as of the rest of the landscape astonished me. Mr Kelsey was good enough to inform me that he gets these effects by graduated exposures, and by tilting the dish during development. Whatever the means employed, the results were, in his hands, lovely.

A great deal of fuss has been made lately in the lay press here over a "new method of producing photographs on paper in natural colors." This resolves itself into the designing of a new one-exposure camera, which is a single lens, three-plate instrument, forming the three images by reflection through colored screens from transparent mirrors, on much the same system as Mr. Ives' Photochromoscope.

I feel sure that the ingenious and persevering inventor of the instrument, Mr. E. T. Butler, F.R.B.S., would be himself the first to smile at the chorus of meaningless praise from the reporters who had a private view of some of the results, and the description of his invention given by them.

We are still waiting for a process as simple as that of the autochrome to get our photographs in natural colors on paper, and I conclude these notes with the hope that I may have the pleasure of writing experiences of the as yet unknown process for the readers of the next edition of the ANNUAL.



DESOLATED.

W. & G. PARRISH.

DUPLICATING LANTERN SLIDES

By H. D'ARCY POWER, M. D.



Take a good lantern slide, bound and ready for use, and without disturbing it obtain a perfect duplicate in a single operation, is an altogether desirable feat. How often have we seen a beautiful slide in the possession of a friend whose duplicate we would willingly possess, but when it came to be a matter of making an intermediate negative, with the resulting loss of quality in the positive, we have let it go. I here offer a process by which the original slide can be duplicated direct without unbinding, and without the slightest change in the sharpness or gradation of the slide. For many years process after process has been proposed for making negatives from negatives or positives from positives direct, but none of these, with the exception of the autochrome plate, has gained any popularity. Personally, I have tried them all, without more than partial successes.

Recently S. Balagmy published a modification of previous methods which though slight seems to solve the principal difficulty, and thanks to this, plus a further modification of my own, I am able to promise the duplicating of lantern slides with ease and certainty. The principle on which all practical duplicating processes rest is that employed in the autochrome development process. After exposure and development in the usual manner, the plate is immersed in a bath of acid permanganate, or acid bichromate, by which the recently deposited silver image is dissolved; after exposure to light the residual silver is developed and a reversed image results. With the thin film of the autochrome plate this works perfectly, but with other plates the thickness of the emulsion is too great for the light to penetrate and the unchanged silver on redevelopment fogs the image. This is the difficulty M. Balagamy has surmounted (at least in part); he reexposes the plate before removing the developed image, which image then serves to protect the excess of silver behind it from the action of the light;



NEW YORK CITY AT TWILIGHT.

DR. A. R. BENEDICT.

the back of the plate is meanwhile protected by black paper or by laying in a black developing pan. So far as my observation goes, this method is a great improvement on all previous ones, but it still shows some fog near the glass. This is presumably the results of light scattered in the emulsion and halation by reflection from the glass. I reasoned that this might be overcome if the exposure were made glass to film instead of film to film, which furthermore would have the advantage of preventing the lateral reversal of the image, which occurs when a negative is chemically turned into a positive. Should any fog present itself it would be at the surface of the film, while the image would be next the glass; a little Farmer's reducer would, therefore, remove the former without affecting the latter. Experiment has completely verified these deductions.

The only remaining difficulty that has to be overcome is the loss of definition resulting from the intervention of a thickness of glass between the films; this is easily obviated. If the printing be done by light coming through a lens, the image is sharp, even if negative and positive are considerably separated. I print in the light coming from my enlarging lantern—an equally good plan is to remove the camera back and put the printing frame in its place and direct the lens to the *open sky*. Such being the principles involved I will now give the working details.

1—Place the slide to be copied in the printing frame in contact with an unexposed plate, *film to back*, between this and the back of the frame interpose a sheet of black paper.

2—Expose. Correct exposure is absolutely essential. This must be found by experiment. Using the light from an N. Ray passing through a lens stopped to F 32. I find about four seconds right. The light must pass through a lens.

3—Develop fully, but not excessively, or on reversal the detail in the high lights will be destroyed.

4—Wash. 10 to 15 minutes in the dark room.

5—Put a piece of black paper in a developing pan, half fill with water, then place the slide film side down, therein, and remove into *full daylight* for five minutes.

6—Take slides back (undisturbed) into the dark room and place them in a bath of 1 per cent. solution of potassium

bichromate acidulated with 1 per cent. sulphuric acid. In three minutes the black silver image will have disappeared.

7—Wash (in dark room) for twenty minutes.

8—Redevelop fully.

9—Fix in Hypo.

10—If the resulting slide is too dense or any trace of fog or stain is present, a little Farmer's reducer will put the matter right.

11—Wash.

The duplicate slide should be identical with the original. In detail and gradation it is always so. If it vary in density it is probably due to incorrect exposure during printing. As in autochromes, underexposure will give dense, dull slides—overexposure thin ones and high light detail will be lost. In practice the method is easy and rapid. I am rapidly adding to my collection of slides by its use. As to the best developer I use acid amidol—doubtless others will work as well.

The method is equally applicable to the making of duplicate negatives, and to making lantern slides direct from prints without the intervention of a negative.



THE TAR TURNER.

DR. ALBERT R. BENEDICT.

BROMIDE ENLARGING CONTROL

By J. M. SELLORS



NE excellent method of introducing modifications in light and shade, when enlarging appears to be very little practised—i.e., by means of ground glass. I know that many workers have an idea it will give a more or less pronounced grain in the print, but this is not necessarily the case, merely results from using unsuitable material. When the enlargement is made by diffused daylight any semi-transparent media may be interposed between the light source and the negative without causing granularity, but when a lantern and condenser are used the conditions are entirely altered. In the latter case an enlargement made from a negative, the back of which has had a coat of fine ground glass varnish, will show a distinct grain. Of course, for some subjects this might be an advantage, but in the majority of cases granularity is a thing to be avoided.

The method of control here described will give an enlargement, or even a lantern slide by reduction in the lantern, without the slightest trace of grain. A piece of the very finest ground glass is placed in the lantern carrier in contact with the back of the negative, the ground side of the glass being towards the condenser. The proper glass to use is what is known to the trade as "Acid-etched Patent Plate." With the ground glass and negative firmly clipped together in the carrier, the latter should be held up to a good light and the ground glass worked on where more density is required by pencil or stump—where more transparency is wanted the ground glass is touched with a rag which has been slightly moistened with oil or glycerine and water. To obtain the maximum effect, a clear white oil should be used as a yellow oil naturally stops a certain amount of light. With a little care and practice the oil effect can be beautifully graduated. The edges of the working are always slightly softened off on the print, owing to there being two thicknesses of glass between the working and the film. The maximum of modification in each direction can



PORTRAIT.

J. Ellsworth Gross.



Fig. A.



Fig. B.

A CORNER OF THE NEW
VICTORIA MEMORIAL,
BUCKINGHAM PALACE.

*Illustrating Article "Bromide Enlarging
Control," by J. M. Sellors.*

be obtained with a soft negative of the type usually regarded as the best for enlarging. The acid-etched glass just doubles the exposure. When obtaining the glass care should be taken to see that the ground surface is perfect and that there are no flaws or bubbles in the glass.

The two illustrations will give some idea of the control obtainable. "A" is a straight enlarged print without ground glass, while "B" was made with ground glass on which the following work was done: The trees on the right have been lightened by stump and crayon, and a little detail has been put into the foreground lamppost. The distant figures, which are rather too obtrusive in "A," have been softened down with pencilling, and the roadway and edge of pavement in immediate foreground have been darkened by oiling. All this work has been roughly and obtrusively done so that it may show, and it is not intended to have any pictorial value, although the half-tone reproductions will be valueless as criterions of grain. I think the editor will bear witness that there is not the slightest trace of it on the print "B."* One word of warning: the etched surface of the glass is rather delicate, and is easily scratched with any hard instrument, so care should be taken of it. Lantern slides by reduction and transparencies made in the lantern for enlarged negatives may be modified as successfully as enlargements. When finished with the acid, etched glass can be washed with soap and water in half a minute. It is then ready for use again with another negative. In addition to pencil and stump, density may be increased with washes of oil or water color mixed with artists' oxgall.

*The print B referred to by the Author does not show the slightest trace of grain from the use of the ground glass.—EDITOR.

DON'T GUESS—KNOW

By A. F. FRANCE.



HOTOGRAPHY interests and appeals to you. You buy a camera and begin. You soon find out that it costs you considerable money for a few genuine successes. You can save all this. Start right. How much time and money is wasted just for the lack of a little common sense; films under-exposed, films with the picture crooked, which with a little judgment could easily be corrected.

A hand camera should be held with both hands against the body, and in making the exposure use the trigger on the side of the shutter. In using the bulb the motion of squeezing the bulb will jar the camera, therefore spoiling the picture; whereas when holding the camera with both hands there is no movement. In the majority of films I develop, I find part of subject on the film, part off, which is caused by the amateur in making the exposure without composing the subject in the finder. In their nervousness to see if the subject is looking pleasant, they look up, naturally causing the camera to tilt upwards; therefore only having part of the subject on the film when the exposure is made.

One should learn to compose the subject in the brilliant finder supplied on all hand cameras, and with a little practice you will find you can compose as well in the finder as on the ground glass.

Correct exposure is the greatest difficulty experienced by the amateur in hand camera work. We know that we cannot make an exposure less than 1-25 of a second when the camera is held in the hand. In all my work I always leave my speed at 1-25, except for fast moving objects, and use the stops to regulate the exposure according to the light. Correct exposure is the essence of success. Experience and judgment are necessary, but by following these simple instructions you cannot go far from wrong.



MÉLROSE ABBEY.

A. F. FRANCE.

One should be thoroughly familiar with the working of his lens. Expose a roll of film on a bright day, all on the same subject, have the shutter speed at 1-25, or with the ordinary kodak at "instantaneous"; make one exposure with Stop No. 4, another with Stop No. 8, another with Stop No. 16, and another with Stop No. 32. We will thus have four exposures taken at the same speed, but with different size stops. A comparison of these four negatives will give you the covering power of your lens with the different size stops.

The following table will be found to be a useful guide:
Ordinary outdoor work, street scenes,

Stop 8, Exposure 1-25th sec.

On water, tropical climate, Sun bright, Stop 16, 1-25th sec.
Light foreground, light buildings, views,

Sun bright, Stop 16, Exposure 1-25th sec.
Light foreground, light buildings, views,

Diffused Light, Stop 8, Exposure 1-25th sec.
Light foreground, light buildings, views,

Dull day, Stop 4, Exposure 1-25th sec.
Landscapes, strong foreground, heavy foliage, buildings of
average color, studies in the shade,

Sun bright, Stop 8, Exposure 1-25th sec.
Landscapes, strong foreground, heavy foliage, buildings of
average color, studies in the shade,

Dull day, Stop 4, Exposure 1-25th sec.

On moving ships, trains, etc., open up lens, expose 1-100 of
a second. Remember that when you stop down you shut off
your light. The picture of Melrose Abbey was taken on a
rainy day. Lens wide open exposure 1-25 second. Do not
stop down unless it is a very bright day. You will then get
results.

These suggestions cover all that is necessary to insure good,
average results with the ordinary lens furnished with a kodak.
Start correct, give the right exposure, and development will
be the easiest of operations.



TAKING THE CHILDREN

By JEAN M. HUTCHINSON.



HAVE dabbled in photography more than a little, and have found it a most delightful and interesting hobby. As genre work appealed especially to me, and there was an abundance of children in the family, and as most of the photographic books advised specializing, I turned my attention to children's pictures.

Alas! the poor children. I fear that I, and my ever-present camera, rendered their existence quite miserable; for I fairly dogged their footsteps when they visited us, such was my enthusiasm. When the kodak and I appeared upon the scene, Jessie, a coquettish and saucy little body of five years, would greet us with "You needn't think I'm going to sit still, Aunt Jean!" I would hasten to assure her that at my time of life—she regards me as an "awfully old, grown-up lady"—I had given up expecting little girls of her type *ever* to sit still, and so laid my plans accordingly.

Those poor, unfortunate cherubs! I took them at early morn in their cribs, as "Good Morning." (This was in the early days of my camera fever.) I took them saying their "Now I lay me," as "Good night." At least I attempted it, but between the dim light, and the frequent interruptions of "Aren't you most through the picture, Aunt Jean? I'm tired of 'Now I lay me,'" I had to confess myself outdone. I snapped them in the daisies, and among the apple-blossoms. To be sure, the blossoms did not hang quite within reach, but I tied a beautiful pink and white branch on the tree at the desired spot, and no one knew the difference.

I bought the children bubble-pipes, and a dolls' tea-set, also a tiny washing outfit, and took several studies of them washing dolls' clothes, and playing five o'clock tea. In one of them the little girl stands, her hair pinned in a curly knot on the top of her head, her skirts tucked up in true washerwomanly style. She was supposed to be intent on rubbing clothes, but in real-



LA VERNE.

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ity, just as I opened the shutter, she turned and flashed at me a look of utter mischief. In the five-o'clock tea subject, Jessie is pouring a cup of imitation tea for her brother and another small boy, and remarking hospitably, "Father, pass the pork and beans." This, in spite of my protest that one does not usually serve pork and beans at five o'clock tea.

One day I suggested soap bubbles. The idea took instantly, and bubbles became a most popular amusement. When the children were entirely absorbed in trying to blow the largest bubble, and quite unconscious of me and the camera, I caught several natural poses, one or two of which were charming. Standing under a tree, one dimpled arm raised, the dark-haired little girl held out a bubble-pipe from which a filmy bubble floated. The fair little boy, in his white middy suit, sat cross-legged on the grass, tightly clasping his new bow and arrow, and gazing intently up at the bubble.

One day I was peacefully reading indoors when I heard shrieks of laughter and squeals of delight from the garden. Upon going out I found my precocious niece had attached the hose to the faucet, and turned on the water. She had begun to sprinkle the garden, and, by way of variety, she would now and then turn a drenching stream of water on her brother. He had fetched an old umbrella from the closet, and was protecting himself beneath it in company with Jack, the small boy from next door. The moment this scene greeted me I rushed for my camera, and I succeeded in securing some laughable pictures. Rowdy, the dog, came in for his share, both in the sudden showers and the photographs.

By this time I had become a confirmed camera enthusiast, and I longed to attempt indoor work, especially as winter had arrived. So I fashioned a short-waisted Kate Greenaway dress, and a neat cap, and coaxed a little sedate, fair-haired friend of mine to pose for me. (One needs a sedate model for indoor work, with its longer exposures.) I caught her standing in the window smelling the Chinese lily, with the white curtain as background. I took her by flash-light, seated on a low stool by the fire-place, holding a doll in her arms, and waiting for Santa Claus. The stocking hung by the chimney. This is a conventional and rather trite subject, no doubt, but it seems to be one ever dear to the hearts of people.



THE STREAMLET.

Kate Smith.

Of course, I try always to select an appropriate setting for the picture; for it seems to me that the setting constitutes rather more than half the charm of the picture. But this is sometimes a different matter with children; for, as surely as one chooses a certain place, or pose, for them the spirit moves them to pick out another. Then, too, I think one should almost never pose a child. Children naturally pose so cunningly, and



FEEDING TIME.

JEAN M. HUTCHINSON.

can, indeed, teach us grown-ups much in the way of unconscious posing. I usually suggest some play or occupation, plant the toys in a suitable spot, and wait until a picture presents itself. Or I take the children to the garden, and ask them to water the plants, or to pick me a bouquet, and they will do the rest. So, really, you see, it is quite simple—the children do the posing. I press the button, and the sunshine does the rest.

PHOTOGRAPHY IN A BEDROOM

By RICHARD HINES, JR.



SEVERAL years ago I wrote an article for the ANNUAL on the "Evolution of a Dark Room," giving my experience in the change made from darkness to light. Owing to another change in my environment, I have experienced another evolution, about which I propose to tell in this article.

Last fall I was forced to give up housekeeping, after having tried it alone for three years with an old servant. My photographic environment while keeping house was well nigh perfect, and the greatest obstacle I had to overcome in making up my mind to break up the home I had occupied for a dozen years, was the giving up of my photographic arrangements.

After moving into the house of an old friend, to make my home there, last fall, I first tried to do my photographic work on an enclosed gallery, only one end of which was open. There I set up my photographic wares for an experimental period and did some work; but I soon found that the curiosity of the children in the home, though previously warned, led to such meddlesomeness that I never found my table like I left it, and things were always missing.

After much thought as to whether I should give up the work altogether, or arrange for a den away from my home, into which I could put my belongings under lock and key, I thought I would try it out in one corner of my bedroom. I am sending you a picture of the installation, and so far it has been very successful. At this table I work after supper, that being the only time I have to devote to photography now. The reader will note that there is everything at hand for convenience—graduates, stirring rods, large bottles for hypo and water, trays for developing, and over on the left-hand side of the table, though but dimly shown, is the electric light, with its red and orange tubes which can be put on and taken off instantly—a method which was illustrated in the ANNUAL several years ago. The bread-box at the right is used for storage

and the telephone is thus placed so that when working I will not have to leave my seat to talk with anybody who calls for me—a frequent cause of annoyance in former years.

Underneath the table the slop bucket is visible, but there are also stored under there trays of all sorts and sizes. Most of my work these days is done with a F. P. K. 3a and the drawer in the table is used to store the books of film negatives. Enlarging in a small way can be done on the table and by



ILLUSTRATING "PHOTOGRAPHY
IN A BEDROOM."

RICHARD HINES, JR.

removing slops after each session at the table, there is no disagreeable smell of chemicals.

Two front windows of my room open on to a broad gallery upstairs, and at the end of that gallery there is an abundance of running water, so I do not have to trot up and down stairs for water.

Let the amateur who thinks he has no place for photography take heart through this experience of mine, and go do likewise, and he will be surprised how much photographic work can be done in a small space, provided he learns the les-

sons that I have learned through all this evolution—cleanliness, a place for everything and everything in its place; the washing and putting away of trays and other utensils immediately after use, and the emptying of the slops as soon as your work is over. One who is cleanly and methodical will naturally attend to these things, and if he does his little kitchen table in the corner of his bedroom will be a spot of never-ending pleasure and enjoyment to him.



AN EARLY
MORNING LIGHT.

A. W. WALBURN.

THE REFLEX CAMERA FOR PORTRAITURE

By W. S. CROLLY.



PROHIBITIVE prices and over-exploitation of speed features have militated against the reflex camera's general adoption for the more serious business of portraiture. Evidences are not lacking, however, that it is slowly making headway as a studio proposition. At the Rochester convention, in 1909, a prize for the most useful photographic appliance was awarded the inventor of a reflect-attachment adapted to the ordinary studio box.

But in cold fact the reflecting camera is not the best instrument for photographing rapidly moving objects at shifting distances. The best tool for that purpose is the one suggested and used by Dimock for his leaping-tarpon pictures; a small ordinary camera fitted with a fast, rather short focus lens, speed shutter, and a rack and pinion focusing movement blocked between infinity and twenty-five feet, with one or two clicking locks for intermediate distances. Such a camera can be used at eye level with a direct view finder, and the focus shifted more rapidly and accurately than that of a reflex. With the focusing screw levered directly to the release, focus and exposure may be effected almost simultaneously.

But for the studio and home portraiture the reflecting camera is unrivalled, with certain disadvantages.

The three great advantages are:

Composition and character observation from the lens point of view.

Ability to use lenses of large opening, with quick, precise focusing.

The wealth of illumination given by the focal plane shutter at low speeds (from one-tenth second up).

The disadvantages are:

In the studio the "operator" must provide and move about some sort of pedestal if the camera is to be used at eye level.

(For home portraiture he will be obliged to requisition a kitchen chair, cleverly preserving his equilibrium while peering into the hood. The writer once lost his balance, with farce comedy results.)

Finally, when making interior time exposures with the auxiliary between-lens shutter, it is often necessary to fold down the hood in order to observe the subject over the top of the box. But with rapid plates, fast lens and the focal plane shutter, exposures of one-tenth second should be quite practicable in good studio light, and the gain in spontaneity over time exposure is not to be reckoned lightly. A slow exposure is rarely necessary out of doors, which reveals the crux of the matter: the reflecting camera is an efficient tool for "instantaneous" work, and its logical and consistent use demands it be held in the hand and that results, pictorial and otherwise, be apprehended on the ground glass. The exposure estimate being correct, all attention should be fixed on the right-side-up flat image; if pose and expression are satisfactory, blaze away—you can bank on the finished product being a fair replica.

The accompanying "snapshot" illustration was selected as being strictly within the peculiar field of the reflex camera, with its great adaptability for what might be termed "opportunistic photography." It was the last and only chance to obtain a likeness of the subject in the particular costume, and only two plates were available (slow ones at that). With a time exposure there was every likelihood of the subject moving, unless resort was made to the coercive process, with its resultant Humpty-Dumpty hard-boiled-egg face. With the lens at F/6.3, a sadly slow plate, and standing upon a wobbly chair, the result was eminently satisfactory to the victim and her friends. No posing was suggested, the disposition of the hands was spontaneous and natural, and the dawning smile was noted on the ground glass and arrested in one-fifteenth of a second. To the writer the result was less satisfactory; but the print was from a practically straight negative, and whatever its technical and artistic shortcomings, they still speak strongly for the efficiency of the mechanism.

Regarding the best American reflex camera for portraiture, much pro and con may be weighed. For strictly instantaneous

work the set shutter instrument is superior. The interval between mirror release and exposure is only about one-tenth second, and the action is incomparably smoother. With the mechanically raised gravity-set shutter the interval is about one-fifth, and when operated more rapidly there is considerable attendant "bang"; but in the case of a bulky 5 x 7 reflex, the bark is worse than the bite. The writer has frequently made hurried exposures in one-fifteenth second with entire freedom from vibration. For time work the gravity shutter is by far the handiest. The curtain is set full open, and after focusing, the lens is closed by the auxiliary between-lens shutter, the mirror quickly raised and locked for "time," and exposure made as usual.

The reflex for portraiture should imperatively have a reversing back. For general purposes it is practicable to hold the non-reversing box in hand at eye level; but it is an awkward business for portraiture, and the image is dimmed by the extraneous light.

For professional purposes and contact prints the 5 x 7 is the best size. The half-plate box is scarcely less heavy and massive and infinitely less useful. For enlarged negatives or projection on bromide or developing papers, the quarter-plate is the amateur's instrument *par excellence*. The 4 x 5 is a compromise, considerably more bulky, occasionally yielding useful contact negatives, but more often those requiring enlargement. For home portraiture lenses should be respectively of six or seven and ten-inch for the quarter-plate and 5 x 7 sizes. The cramped situations obtaining in this class of work generally preclude longer foci lenses, but the sizes suggested are the permissible minimum. For while the exaggerated perspective of short focus lenses may be partially counteracted by tilting downward, it should be pointed out that this may be easily carried to excess, and in some cases is highly undesirable in any degree. For the 5 x 7 and contact prints the F/6.3 anastigmat lens is not absolutely necessary. One of the better class of rectilinears working at F/6 will answer admirably. But for the quarter-plate and enlargement the corrected lens is indispensable. If the purse is sturdy, an F 4.5 anastigmat is still better. The anastigmat is not an ideal lens for portraiture, but unless the Petzval lens has a diffusing attachment, it has

all the anastigmat's "fault" of critical central definition, while its marginal field is impossible. However, sharp definition is not necessarily displeasing, even in portraiture, and much of the deplored "wiry" effect is often the result of bad lighting or bad negative making. Exquisite results are obtained with rectilinear lenses of great opening and focal length.

The quarter-plate revolving back Graflex is excellent for portraiture, allowing great latitude in lenses. For ordinary purposes it may be fitted with a seven-inch anastigmat, preferably one working at $F/4.5$, while for bust portraits it will carry an $F/6$ rectilinear of twelve-inch focus, with beautiful results as regards drawing and atmosphere. It will even accommodate one of the smaller type of Petzval lenses, of aperture $F/5$, and long enough focus to bring the plate within the field of critical definition (about 22 degrees, or one-third the focal length of the lens). One great advantage of the quarter-plate size is the general depth of sharpness resulting from the shorter focus lenses used. This can be upset to any desired degree in the controlled enlargement, and the gain is particularly apparent in seated figures. The seven-inch lens had twice the depth of field of the ten-inch lens at equal stop values, and the longer focus anastigmat at full open has an exasperating trick of picking out planes with cruelly irrelevant definition. For amateur purposes the quarter-plate camera has all the weight of the argument.

For the studio, with plenty of room for "operating," the choice falls on the 5×7 long focus Reflex, which will accommodate lenses of focal length equal to three times the base line of the plate. This should be mounted upon the usual studio stand, and the extension front will require a traveling support if the lens is of the heavy "long Tom" cannon type.

The illustration was made with the ordinary 5×7 reversible back Reflex and ten-inch $F/6.3$ Tessar lens. Ordinarily the bellows extension will focus down to five feet, but with a home-made box front it will work as close as three feet from the subject.



W. S. Croll.

Illustrating article on "The Reflex Camera for Portraiture."



TO THE SEA.

HAROLD CAZNEAUX.



SCHMIDT (DETROIT)
REACHING FOR BALL.

CHARLES M. CONLON.

THE PHOTOGRAPHER AT OUR NATIONAL GAME

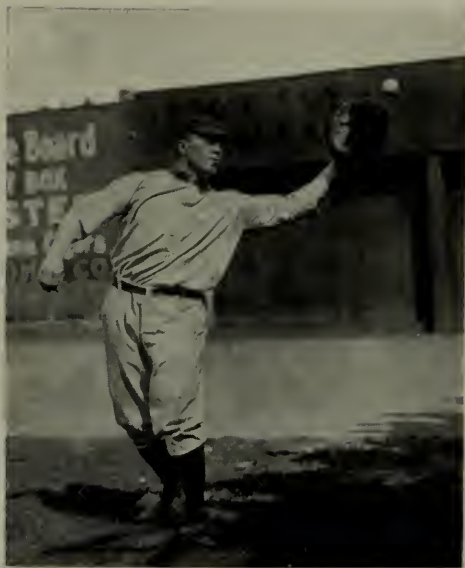
By CHARLES M. CONLON



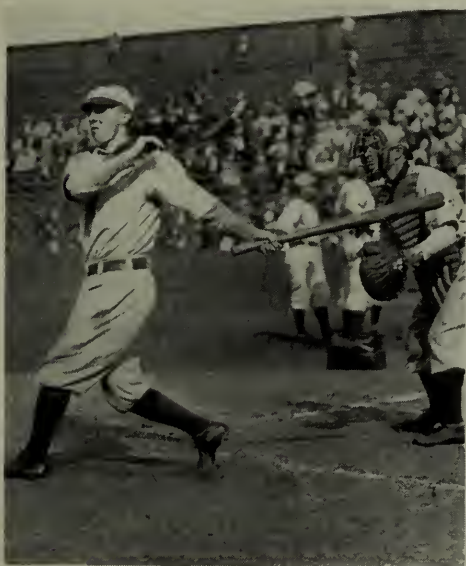
F late years a familiar figure on the ball fields in the American and National Leagues has been the baseball photographer. He has contributed not a little to the popularity of our national game. Every baseball "fan" who has cheered enthusiastically some striking play of his favorite team or player, enjoys seeing in the daily paper a faithful reproduction of the play which aroused him, and the action pictures are as interesting a part of the baseball news as the account of the game. Good lenses and rapid shutters have made it



MURRAY (NEW YORK NATIONAL) AT BAT.



MITCHELL (NEW YORK AMERICAN) REACHING FOR A WIDE THROW.



BALL IN AIR.



OAKES (CINCINNATI) SLIDING TO BAG.

*Illustrating article "The Photographer at Our National Game," by
Charles M. Conlon.*

possible to reproduce every incident of the game. Fielders reaching into the air for throws, batters swinging at the ball, and runners sliding into the bases, are all caught by the camera. Even the ball is stopped in its flight and illustrates the story of the game.

The height of action and interest is concentrated in the pictures of players sliding into the bases, and these are the favorite subjects. Through regular attendance at the games the baseball photographer learns where the plays are most likely to occur, and usually is on the spot. About twenty feet from third base, or the home plate, is generally selected as a point of vantage, though sometimes the camera man is seen back of first base. From one position to another he moves as the action of the game indicates where slides are most likely to occur, and when the dust has cleared away after a daring dive for the base, the photographer usually is seen making ready for another exposure.

A considerable element of danger enters into the activities of the photographer. Balls are frequently batted with such force that he is unable to get out of their way, and battered cameras and bruised bodies are not uncommon. Less than half an hour after the writer saw the photographer for a New York daily struck in the jaw and rendered unconscious by a batted ball, he was himself hit in the ankle by a foul ball batted along the third base line, and was unable to walk for two weeks.

The constant danger of serious injury to the photographers, in addition to the occasional interference with runners, led the National League directors to make a rule during the last season barring photographers from the field during the game. The officials of the American League, however, realizing that the newspaper pictures aided in advertising the game, decided to let the photographers take the risk, and during the season cameras were welcomed at all times.

One feature of the photographers' work on the ball field has made them unpopular with the umpires. Every baseball "fan" knows that it is practically impossible for an umpire to be certain about some plays on the bases. This is particularly true when a player slides into the home plate. The runner is seen dashing madly in from third base, about a dozen feet

from the plate he drops to the ground for a slide, and in a cloud of dust the ball and the runner reach home practically together. The catcher puts the ball on him, but whether before or after the plate has been touched no human eye at times can definitely determine. The umpire acts according to his best judgment, and decides the runner safe or out, as the case may be. Frequently there is a loud protest from the side which loses decision, and for a time the umpire is made miserable. His peace of mind, or friendliness for photographers, is not increased when he sees in the newspapers next day a picture which demonstrates conclusively that he gave the wrong decision.

Despite the fact that he works under weather conditions far from pleasant, and is constantly in danger of serious injury, the baseball photographer generally loves his work, and brings to his labors an enthusiasm and admiration for the game second only to that of the players.



THE HUNDRED.

C. M. WHITNEY.

SUGGESTIONS TO TOURISTS

By J. C. HEGARTY.



THE use of the camera by the traveler as a means of recording impressions of scenery, places of interest, or quaint costumes of strange people is almost universal; its value as an adjunct to the note-book is freely conceded. A carefully written description of a place visited will not bring back in after years as clear an impression of the scene as a photograph.

The person contemplating a tour should not fail to provide himself with a camera, for the views obtained will have a value far above the commercial photograph, and will often have a personal interest.

Considerable thought should be given to the selection of the camera if the tourist contemplates making a journey of any length. He should carefully consider the size and decide on the advisability of using plates or films. The size of the plate or film should not exceed $3\frac{1}{4} \times 5\frac{1}{2}$, or 4×5 inches, as a larger size would require an instrument that would be too large to carry; smaller than 4×5 would be unsatisfactory for contact prints, and unless the negatives are first class, enlargements are not desirable. The most important part of the camera is the lens, and it is wise in selecting a lens to buy the best that can be had. Although somewhat expensive, it is better in the end, as a good lens will give a fine picture with a large aperture which means that exposures could be made, even in a dull light, that would not be possible with a lens having a smaller diaphragm. Frequently the tourist cannot select a time when the scene is properly lighted, but must make the exposure at once, or not get the much desired view. At such times a good lens is indispensable. The style of camera will be a matter of individual preference, some preferring the compact folding film camera, others the box form, and some the reflex type;



WATCHING THE SUNSET.

each style has its merits, the first mentioned being less bulky and more convenient to carry, but as it has to be opened and adjusted when making an exposure, requires more time than the box form that can be quickly focused. The reflex type, although more expensive, has a great advantage from the fact that you can see on the screen just what you are getting at the moment of exposure. The ideal instrument would probably be a reflex type of camera fitted for plates or film, the objection to this style being its bulk and weight. If a compact camera is desired, one similar to my Ansco No. 10 may be chosen. This film camera can be fitted with a back so that plates can be used and each exposure focused if so desired.

A light tripod that can be folded compactly should be included for use when necessary to make a time exposure.

The selection of plates or films will be governed by conditions. In the opinion of the writer, better results are obtained with plates than with films, but the great weight of plates is an objection. A few dozen of plates are of considerable weight, while many rolls of film may be carried without increasing the weight of your baggage to any extent. Should the tourist desire a print from any particular exposure, he could have a plate developed by a local photographer, while it would not be convenient to have a roll of film developed until the entire roll had been exposed. Then again, roll film can be placed in the camera in daylight, while changing plates requires a dark room. Should the trip be leisurely, and not of great length, and some additional weight not objectionable, the writer would advise the use of plates. On the contrary, should the tourist be making a lengthy trip, and object to weight, he should take a supply of films. An ample supply of plates or films should be taken along, so that it would not be necessary to limit the number of exposures, should the tourist visit a locality rich in subjects for his camera.

The light varies greatly in different localities, making it impossible for the tourist to decide on the correct time for every exposure, but it is advisable to give a liberal exposure whenever possible. There will be many occasions when a photograph of a beautiful scene, or some point of interest, is desired, and the light or other conditions are not favorable. Then it is better to make an exposure and try to bring the image out



MORNING SUNSHINE.

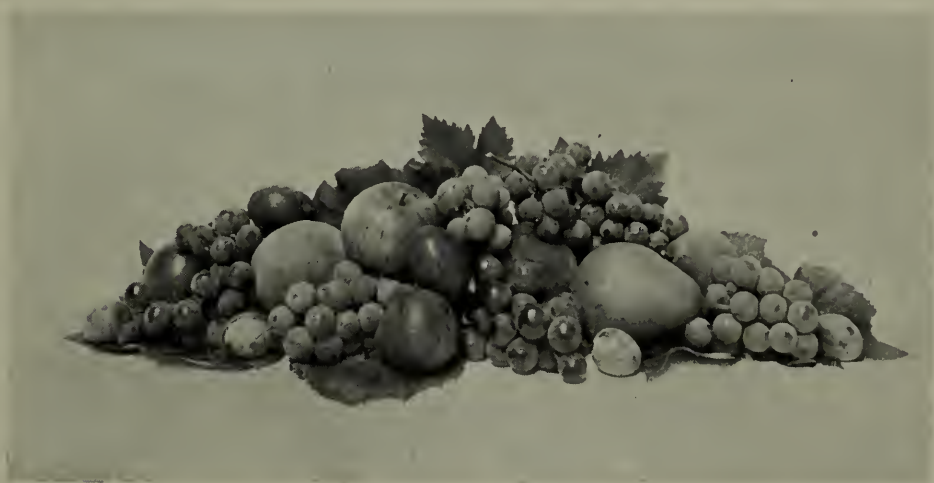
Frank E. Huson.

in the dark room. You may succeed in getting a negative of the coveted scene. If not successful you will have made an effort at least.

No attempt should be made to photograph a scene from a moving train, except from the platform of the rear car, and then only when the train is moving slowly. Exposures from steamboats are rarely satisfactory, as the distance from the object on the shore is usually too great. The shutter should be operated at high speed when on the water, owing to the great reflection. The same advice applies to photographing water-falls, while views of heavy trees, dark buildings or canyons require a liberal exposure. The tourist will have many opportunities to include figures in his landscape views, as the ever-present intruder will be eager to pose, but it is better to make the landscape, then carefully pose the person or crowd and make a group. It is not necessary to use a plate for this, as the same feeling of satisfaction is felt if you simply go through the motion, but do not open the shutter.

Few amateurs will attempt to do any developing while on tour, as dark room facilities are invariably limited, and much better work can be done at home, when you have ample time to devote to this work.

A record should be kept of all exposures, not only for the purpose of identifying the different negatives, but as a guide for use, showing you under what conditions your successful negatives were secured.



FRUIT.

NATHAN R. GRAVES.

SIMPLE DEVICE FOR PRINTING BY ARTIFICIAL LIGHT

By ROBERT E. M. BAIN.



WHEN everybody is his own printer, the usual plan of holding a printing frame before the study lamp soon becomes tiresome. It is also uncertain in some degree—the distance is not always the same. It is much better to prepare a box for the purpose, and its handiness will induce you to do more of your own work. It also costs less.

Secure a box the ground dimensions of which are about 9 x 12 inches, and which is, say, 10 inches high. Procure a printing frame 9 x 12 and fit it to the open top of the box by means of guides at the sides and stops at the back. This will permit of the printing frame being pushed in at the front and stopped when in proper position for printing. An inch below the top, inside, strips should be fastened on which should rest a sheet of ordinary ground glass for diffusing the light. Two-thirds of the front of the box should be removed and replaced by hinging at the bottom, so that when open it will be parallel with the bottom of the box. Under the ground glass and resting on the bottom of the box should be a board, say one inch thick, and of the dimensions of the bottom. To this is attached four incandescent lamp sockets equi-distant from one another, and connected with a socket on the outside of the box. The board with the lamps attached can be easily removed for changing the lamps or cleaning them. This is the apparatus in its simplest form.

It can be improved by adding a switch which will be automatically closed when the printing frame is pushed in place, and opened when the frame is slid out. A further improvement can be made by an electrician, whereby an alarm clock is

introduced and so arranged that it can be set for a certain number of minutes or seconds, when it will automatically cut off the current and stop the light, and thus avoid the necessity for watching. This is especially convenient when using dense negatives which require a long time of exposure.

A man with a few tools, and a little ability at carpentry, can make the above in a single evening, including connecting up

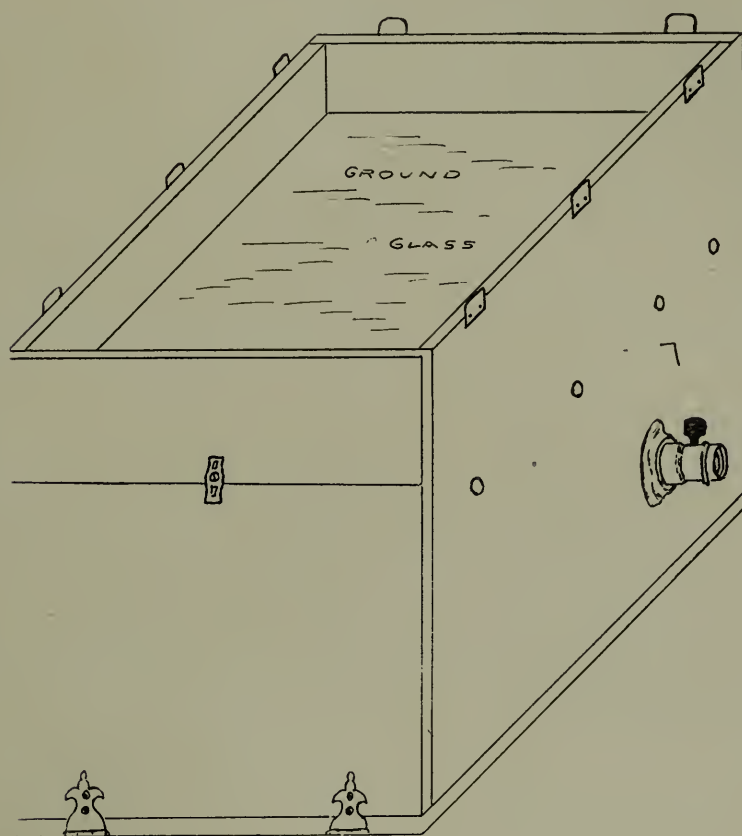


Fig. 1

the sockets and placing the switch. The cost is trifling. The saving in paper will very quickly pay for the apparatus. The cost of electric current need not be considered, for it is not more than would be used if one light were used. A few holes should be bored in the box below the ground glass to ventilate and carry off the heat from the lamps.

AN AID TO THE PRODUCTION OF GOOD QUALITY BROMIDE PRINTS

By FRANK E. HUSON.



WONDER how many have tried and tried again to obtain those soft, pearly, delicate, and at the same time rich, bromide prints, by carefully adjusting the exposure and development by successive attempts in order to get a particular style of print? In practice the straightforward way is the most difficult. The dark-room light, on account of its color, invariably falsifies the result, and one is apt to misjudge the strength; further, the fixing bath often modifies the final result.

There is a simple means of obtaining those beautifully delicate bromides akin to first-rate platinum prints in a fairly high key. If we give a bromide print ample, but not gross, over-exposure, with a reasonably dilute developer, the print will come up regularly and the tone values of the negative proportionately rendered, even if the negative is on the dense side. Supposing we require certain of our light tones to be white in the finished print, we must on no account develop till they get veiled, or our after-process will fail. Upon the bromide print, whether it be a contact or enlargement, giving the scale of tones required, it should be rinsed, fixed and dried. At this point the operator will be disappointed; the print, if it has had long enough exposure, will have clear high lights but otherwise be flat, and perhaps of an unpleasant color. The print being thoroughly dry, it is soaked till limp and immersed in

Potassium Bichromate 70 grs.

Hydrochloric Acid 35 min.

Water 7 ozs.

In this bath the print will rapidly bleach when it should be well washed in several changes of water and redeveloped in a strong M. Q. developer, when, if the print has been suitably prepared, the color will be a rich full one of a very pure char-



*"Some western clouds all billowy bosomed,
Overbrowed by many benedictions."*

FRANK E. HUSON.

acter. The developer should be well washed out and the print dried.

The process is, of course, one of chromium intensification, and may naturally be used for improving thin negatives if desired, but I am dealing with the production of bromide prints and my instructions presuppose a bromide made with the deliberate intention of after treatment.

It is comparatively easy to prepare the requisite bromide print, whether in enlarging or by contact. A weak developer of the Rodinal or Metol type is to be preferred for the dark-room development. Strong developers like standard M. Q., unless about ten times the usual quantity of water is added, are useless, and of course the exposure must be increased to give a developable image. The second development, on the contrary, should be carried out rapidly with an energetic reducer, especially if a rich effect is desired.



SYDNEY HORSE FERRY.

H. CAZNEAUX.



MOTHER AND BABY.

GOODLANDER SISTERS.

THE CONVENIENCE OF TANK DEVELOPMENT

By HENRY F. RAESS.



TANK development has many friends and many enemies; its friends are those who use it intelligently and get results, and its enemies are those who not only do not use it right but expect too much, not knowing its limitations, nor caring to seek them. One thing that brought this method in bad repute was the weak solutions first proposed; these often gave fogged negatives and straightaway the method was condemned. With a developer of the proper strength and composition, negatives which are everything that could be desired may be obtained. The proof of this is found in the great popularity of the tank, which is now used in so many studios in this country and Canada. And those familiar with the ultra-conservativeness of the average studio proprietor will see at once that there must be something in this system or it would never be used by them, but relegated to the amateur with the remark: "This is good enough for the amateur, but not for the professional, who must watch every plate." Photographers who have large batches of plates to develop find that the tank possesses a great advantage over the tray method. It occupies far less room and protects the plates better from light and insoluble particles which might settle on the film, causing pinholes or other marks.

The writer had charge of the photographic department of a newspaper syndicate for several years, and in order to save as much time and space as possible in handling large numbers of plates we introduced the tank method, which proved an immediate success, using the same developer formula which heretofore had been used in the trays. In time slight modifications were made in the composition so as to make the developer applicable to all kinds of exposures, such as snapshots, architecture, interiors, portraits, night scenes, copying,



PORTRAIT.

Rudolf Eickenmeyer.

etc., using plates differing in their sensitiveness. Although the amount of solution required may seem large, in reality it proves economical, as the developer (mentioned below) will keep in good condition in the tank for several weeks (an inverted tray being used as a cover), and in that time a great many plates may be developed, say, from two to four dozen per day for two or three weeks. Each plate absorbs a certain amount of the developer and this naturally lowers the level of the liquid. Water may be added to increase the bulk, the only difference being that the time of development is somewhat lengthened. The following formula will be found most useful as to keeping qualities and application:

English.	Metric.
80 ozs. Water.....	2500 c.c.
1 oz. 6 drams Sodium Carbonate.....	52.00 gms.
1 oz. 5 drams Sodium Sulphite.....	50.00 gms.
2 drams Hydrochinone	8.00 gms.
2 scruples Metol	2.60 gms.
5 grains Potassium bromide.....	0.325 gm.

The sodas and bromide should be dissolved first, then the hydrochinone added, but the metol should be dissolved in a separate quantity of water and then added to the main bulk. As each plate when developed adds a certain amount of bromide to the solution, the developer will gradually become slower, but this is without any influence on the resulting negative. Should one prefer a slower acting developer it is only necessary to add sufficient water. Used full strength, with enough bromide or "antifriction soda," it may be used for developing papers.

DAYLIGHT

By SEVEDRA O. BARNUM.



UCH can be found in direction sheets and photographic text-books concerning the advisability of using artificial light for printing. Artificial light in theory is constant, but is it so in practice? The writer has used gas, electricity and coal oil, and has been bothered many times by the gas pressure falling off, dynamos go wrong sometimes, and oil has a peculiar way of burning out of a lamp just because the user forgot to fill it. All these things invariably happen at just the wrong time, when you are getting out a particularly nice batch of prints, which you wish to be uniform, or maybe you are enlarging, and the light goes wrong, forcing you to discard the partially exposed sheet of paper, or trust to luck, and continue the exposure with light of an unknown strength.

Any one who has graduated from the nursing bottle stage of photography has suffered from one or more of the above illuminant maladies. The remedy is simple. Use daylight, diluted to suit your requirements. It is not perfect, but it has all the good points of artificial light, and few of its defects. The writer has never had any trouble, printing with daylight, making several hundred prints from a negative, all as uniform as the most exacting operator could wish for.

So much for uniformity. Now a word about speed. By tests I have found that my daylight printer is about twenty times faster than the three Welsbach lights I formerly used, and that is, a negative that required twenty seconds by gas-light requires one second by daylight. These figures must not be taken as standard, but only go to show the difference in my own particular case.

A home-made automatic printer is fastened to the wall of my workroom. The negative lies at an angle of about 45 degrees. All that is necessary to do is to place the paper on the negative, press a treadle with the foot, which brings down



UNLOADING HERRINGS.

THOMAS F. BROGDEN.

a hinged back on the paper. After contact is secured a shutter opens admitting daylight to the negative. When time of exposure has elapsed the treadle is raised, the shutter closes, and then the back flies up into place, out of the way, and the paper slides into a convenient box. Both hands are at liberty during the exposure to get ready a fresh sheet of paper, or to develop the print. For printing post cards I believe this machine to be most practical. I hold the unexposed cards in my left hand, using my right to feed the cards into the printer. I have printed 1,050 cards in one hour, changing negatives five times.

This printer cost me the handsome sum of twenty-five cents, not counting the 8 x 10 printing frame. The shutter has an opening covered with post-office paper which gives a safe light for placing the paper on the negative. The shutter can be fastened open without disturbing the back from its raised position, and then the printing machine becomes a retouching desk de luxe. Printing can be done with one, two or three ground glasses, to soften the light, or in case of a very dense negative the light may be used full strength.

Another case where daylight literally shines is in enlarging. Condensing lenses cost money, and who has any to throw away? An arc light costs still more, and my back yard is waist deep full of tin cones of various lengths, sizes, etc. Diffused light enlargers are slow, and if they are not slow the heat generally breaks the best negative. I have used them all, except the arc light, and now let Old Sol do the work. My enlarging bench is inclined so that the negative comes directly against the sky on the north side of my darkroom; one ground glass is sufficient at all times, and when the sky is clear, or clouded uniformly, none is needed; in fact, I seldom use a ground glass unless I wish to give a longer exposure with a large stop. Slow brands of chloride paper can be used, as well as bromide. I have made a three times enlargement from an average portrait negative on Artura Iris in less than two minutes. Velox, Azo, Nepera and Cyko, all can be used; in fact, the paper I use for contact printing I use for enlargements.

Daylight has several other advantages. In warm weather an artificial lamp house will heat up the room to an uncomfortable degree. By using a developing light of diffused day-



AT THE FORGE.

Chester M. Whitney.

light coming through post-office paper, there is no need for any artificial light in the workroom. Whether you are enlarging, or making contact prints, your negatives will not get hot and peel, or break from the heat, as sometimes happens with artificial light. Another fact I almost forgot to mention is the quality of the prints produced by daylight: a print made by artificial light, and one made by daylight, do not have the same appearance. Daylight gives a softer image, not a flat softness, but it seems to print out more detail in the high lights without overprinting the shadows than is possible with artificial light.

Give daylight a trial; do not use it too strong at first, for it is a very powerful light, and is prone to overdo, unless you keep it within bounds. Give it a chance to show what it can do, and it will pay you dividends in the shape of more work turned out, and a smaller gas or power bill at the end of the month.



A. B. STEBBINS.



ANCIENNE CHAPELLE,
ST. REMI A BORDEAUX.

A GOMEZ GIMENO.



FISHING BOATS.

CHAS. E. WANLESS.

SINGLE LENSES FOR STEREOSCOPIC WORK

By H. W. HALES.



ALTHOUGH well known to experts, there are many amateurs and new workers, who do not know that excellent stereographs may be taken with single landscape lenses. Indeed, they are not only equal, but often superior, to those taken with the newest and most modern lenses of the highest type. It is, therefore, no small comfort to the person of limited means to know that he can get the highest type of work at a very small outlay, and that the results obtained are well worth the time and trouble given to obtain them.

Some may say that stereoscopic pictures are old fashioned, and out of date, but a half hour spent examining really good views in the stereoscope that are properly taken, and correctly

mounted, will soon oblige the observer to acknowledge that for realistic effects no other form of photograph can compare with them.

I do not intend here to go into the principles of stereoscopic work, but simply to tell how excellent results can be obtained, and why the single landscape lenses give much finer effects. It is well known among opticians that there is a so called "depth" of definition in single lenses that is very difficult to obtain in lenses that consist of many glasses, or elements, and this depth of focus (so called) is particularly valuable in stereoscopic work.

Another peculiarity is that the slight distortion of single landscape lenses is often entirely corrected by the stereoscope when viewing the prints, the distortion being in one direction by lenses of the camera, and in the opposite direction when in the stereoscope. Good stereoscopic pictures may even be taken with non-achromatic, or very thin spectacle lenses, but in working with these lenses it must be remembered that the chemical and visual focus are not alike, and allowance must, therefore, be made for this.

Stereoscopic portraits is a branch of photography that does not receive the attention it deserves, and should have, and if any reader of this article wishes an almost "speaking likeness" of a friend, let him try this. He will be well repaid for the trial, and any trouble he may have gone to.

One requisite for good stereo views with single lenses, or any lenses, is to be sure and have the principal subject sharp, and in many pictures the foreground should also be sharp, as no "fuzzytype" will make a good stereoscope picture under any circumstances, notwithstanding all that may be said to the contrary by some peculiar workers.

While on the subject of stereoscopic work of any kind it might be well to mention that very excellent lantern slides can be made with the stereoscopic camera, and many expert workers who have "run the gauntlet" of all kinds of photography, have now settled down to these two branches as more satisfactory to them than all others.

DOUBLE-COATED PLATES FOR TOURISTS

By LOUIS DERR.



HIS paper is a plea for the use of double-coated plates by the tourist who desires a satisfactory photographic record of his journey. The obvious arguments in favor of the roll film, or the film pack, are convenience and portability, and these may be conceded at once; the daylight-loading feature gives opportunity for an unlimited number of exposures without adding to one's apparatus, and the saving of weight is considerable if the exposures are many. The film also has an important optical advantage which will be noted later.

But the film is very far from perfection. The individual sheets of the film pack often fail to lie flat during exposure, and the detail of many a picture is marred in consequence, if the exposure is made at full lens opening. Roll films are less subject to this trouble, but it cannot be wholly eliminated except by a tension device. The film costs nearly twice as much as the plate of equal size, and its sensitiveness is less than that of the rapid plates ordinarily used. In spite of all the efforts of the makers, celluloid is not photographically inert like glass, and developed films show a much larger percentage of spots and streaks than plates do—a result not wholly chargeable to the practice of developing a number of films at a time in the same tray. Finally, the texture of the image on the film is coarser than that on the plate, thus limiting the size of enlargements rather closely. In a word, the film is not nearly as satisfactory a photographic product as the plate is.

It may be argued that these advantages of the plate do not compensate for the additional weight and bulk, and the difficulty of loading plate-holders while traveling; and this is doubtless true for many—perhaps a majority—of the exposures that the tourist makes. Most of the incidents of travel can be conveniently and satisfactorily recorded on films. But

there are always some special scenes which we long to preserve, in print or enlargement, at their very best: a bit of land or water, an historic corner, some gem of architecture; for these, plates should be used. If color values are involved, and they usually are, orthochromatic plates are needed.

For the unusual picture, then, which is worth some trouble to secure, plate and film should be compared solely with reference to their photographic qualities. The greater sensitiveness of the plate is usually, though not always, an advantage. If, as a matter of convenience, the tourist limits his supply of plates to a single brand, they should be orthochromatic, and



then the advantage of the plate disappears, for the color-sensitizing dyes reduce the general sensitiveness of the plate, sometimes considerably. This is shown in the accompanying figure, where A, B and C are prints from plates exposed to a steady light for exactly equal intervals under a photographic wedge, and developed simultaneously in the same tray. The wedge itself is a strip of plate of gradually increasing opacity from one end to the other, and the length of the image thus gives a measure of the sensitiveness of the plate tested. A is the record on a rapid orthochromatic plate, B on a similar double-

coated plate, and C on a film. It will be seen that in general sensitiveness there is little to choose between them, though all are inferior to the "ordinary," i.e., non-orthochromatic plate.

The non-halation quality of the film shows to advantage here. The bright edges of A show considerable fog by halation, while C shows practically none. B shows very little, though the plate used was not backed. Thus, except in severe cases, backing is not needed on the double-coated plate, and the great disadvantage of ordinary plates is avoided without the necessity of the somewhat messy backing.

The advantage of the double-coated plate over the ordinary plate, and the film is shown in the remaining photographs; D is the result of an exposure on a film, under the photographic wedge; E is an exposure six times as long. F and G are the results of similar exposures on a double-coated plate. It will be noticed that in the case of the film the six-fold exposure has lengthened the band much less than for the plate, and that the film image fades out more sharply. In other words, the film has a shorter scale of gradation than the double-coated plate, and this means that the plate not only has a greater latitude of exposure, but is better able to render contrasts of light and shadow, and consequently to give "pluckier" negatives, to the very great advantage of the final print.

This is the photographic advantage of the double-coated plate that puts it far ahead of the film. Just a few words of caution: be generous in exposure; use your own favorite developer if you prefer, perhaps diluting it somewhat, but fix the plates in the bath recommended by the plate maker and wash according to his directions.

THE SKY IN LANDSCAPE

By CHARLES STILLMAN TAYLOR.



O most people the sky is not a common object of study, and few ever give it a thought beyond a casual glance of inquiry to ascertain as to whether the day is likely to prove fair or stormy. To look to the sky only for its meteorological value, is a very grave mistake, and a little study of the sky in its varying changes will bring to light many hitherto hidden beauties, and quite convince the thoughtful observer that there is much that is beautiful to be found in this airy space above us. Watch the clouds, observe them upon a pleasant summer's day, as they lazily float over our heads: light, billowy forms floating before a background of the richest blue. And again, when an impending storm draws near, note the great transformation; the idly floating cloud forms have awakened to activity, they have lost their fluffy shape and gleaming whiteness, and, in response to their sovereign, the wind, go rapidly drifting whence he wills. Indeed, the outdoor world with its cheerfulness, its life and sweetness, is very attractive. Every season, every day, every hour, will be found to possess a charm of its own. To the photographer who has learned to see the beauty of the outdoor world, and who has come to appreciate the various moods and aspects of Nature, there is always an instructive lesson to be learned; a wealth of pictorial knowledge which has all too long been neglected by many amateurs.

To the cultivated eye, every day has its own peculiar beauty, but to the worker in search of pictorial material for the making of photographs, one particular day—or hour—may appear to far outrank all other days. This is so, because a certain effect may better express to the eye the pictorial impression than uppermost in the mind. It is this appreciation and ability to understand the subtle changes of the hour that mean so much in artistic expression. In point of fact, it may be accepted as an axiom, that while we should freely love all that is beautiful,

we should as freely reject any arrangement of Nature not in perfect accord with our pictorial ideas. It is always a difficult matter to select just the right arrangement, and after you have trained your eyes to see these things, you will better understand that the difficulty of separating various sky forms is quite a considerable one. It should be evident to all camerists that it is necessary to preserve a perfect harmony between the sky and the landscape, because it is apparent that no opposition, or confliction, can express our ideas in a pleasant and comprehensible manner. It is only by a perfect union of the land and sky that we can produce a harmonious effect, and if this harmony is lacking, the artistic value of the picture is greatly weakened, if not entirely spoiled. The sky should be regarded as equally important as the foreground, and while the centre of the attraction may be in the landscape, the influence of the sky will certainly be very strongly felt. The portrait painter gives just as painstaking attention to his background as to his subject, because he knows the success of the portrait as a whole depends upon the perfect union of the two planes. In the majority of landscapes the sky is a background for the composition of form, and unless both sky and foreground are properly related to each other the effect cannot be other than unfinished and incomplete.

Upon certain days you may have noticed how beautiful some familiar view appeared, and if you had stopped to analyze this feeling you would have discovered that this perfection was entirely due to the harmony of the sky with that of the landscape. This feeling of unity, of harmony, is not due to the particular excellence of the landscape, neither is it because of the charm which may be found in the sky. It is their fitness of one another that strikes a perfect balance throughout the whole picture. If taken separately, and judged by themselves, a certain landscape or sky may be very good indeed, as separate studies, but if we were to combine the two, there is not the same certainty that they would unite to embellish the expression of the same idea. The pictorial worker should have no desire to parade his skill by printing together this sky with that landscape, but to rather combine them both in harmony that the critical eye may take no offense—rather believe this sky belongs to this landscape, and to no other. It is this per-

fect combination that gives the work of the late Mr. Horsely Hinton its inimitable charm, and without which, the force and beauty of the subject must be diminished and well nigh lost.

It may interest the photographer to know with what importance that really great English landscapist—Constable—regarded the sky, and I cannot do better than to quote from his observation: "That landscape painter who does not make his sky a very material part of his composition neglects to avail himself of one of his greatest aids. I have often been advised to consider my sky as a 'white sheet thrown behind objects!' Certainly, if the sky is obtrusive, as mine are, it is bad; but if it is evaded, as mine are not, it is worse, it must, and always shall, with me, make an effectual part of the composition. It will be difficult to name a class of landscape in which the sky is not the keynote, the standard of scale, and the chief organ of sentiment. You may conceive, then, what a 'white sheet' would do for me, impressed as I am with these notions—and they cannot be erroneous. The sky is the source of light in Nature, and governs everything: even our common observations on the weather are altogether suggested by it. The difficulty of skies in painting is very great, both as to composition and execution; because, with all their brilliancy, they ought not to come forward, or, indeed, be hardly thought of, any more than extreme distances are; but this does not apply to phenomena or accidental effects of sky, because they always attract particularly."

As the sky is a natural background for the landscape, it should, of course, be regarded as such, and while its importance and influence upon the landscape should not be forgotten, it must be treated as a background and kept in proper subordination. The use of a background is to relieve, or emphasize, the principal attraction, and this is accomplished by opposing the direction of the cloud forms to the lines of the view. This balancing is further accomplished by the opposition of light and shadow, the result being a feeling of breadth. When the sky is the chief object of interest—as in a sunset, or a coming storm—the landscape must then assume second place, and be in turn subdued to that of the sky. It matters little whether the sky is taken upon the same plate with the landscape, or subsequently printed in, providing the effect



A HOME STUDY.

E. G. DUNNING.

does not violate the truth of Nature. This question has been argued to a great length in our magazines, both pro and con, but it is of no importance to the pictorial photographer. The camerist who is seeking to express artistic feeling, uses the camera solely as a means to an end, and that end is a picture. Clouds and skies, trees and figures may be printed in, or otherwise obtained, and there can be no question that such a procedure is good, always providing that it is the best for pictorial effect. It need not be necessarily true, but, and here is the gist of the whole matter—it must LOOK TRUE. The camera and other manipulations of photography are the tools of our craft—like the brushes and pigments of the painter—and the worker has every right to use his tools in his own way and to his own advantage.

As the sky plays so important a part in portraying our impressions of Nature, it is indeed surprising how many amateurs still tolerate the “white paper sky,” or are content with the crude and incongruous skies so often seen in many an otherwise good composition. While the foreground may be regarded as the keynote of the picture, the sky plays a part equally important, although perhaps in a much less noticeable degree. The effect of a well-chosen sky is often the means of improving a deficient part of the composition to relieve the principal object, correct a defective bit of foreground, and to give the effect of atmosphere to an uninteresting distance by uniting the earth to the sky. Almost everyone has probably observed the effect of the sky on the surface of a sheet of water: how quickly a passing cloud throws its shadow across it. The earth is also sensitive to the sky, but, of course, not in so marked a degree. Light abounds everywhere. It is not concentrated to any particular place—as in a lamp or other artificial illuminant—but is diffused by the atmosphere over a vast area, and this is so on bright days, cloudy days, and in a lesser degree even at night. As the sky is always above us, the earth receives its illumination from above. In other words, the sky may be regarded as a top light of great covering power and brilliancy, the landscape lying bathed in this mellow light. The bare earth of the roadway gleams with light; shadows of trees cast their dark shapes across it, and upon bright, sunny days, the clouds project their dazzling reflections upon it. The

sky is above us, behind us, and in front of us: the distant hill and valley are softened and beautified by its mellowness. The sky dominates over all, bringing into harmony the land and the sea, that they may appear one perfect whole. It is this quality of breadth—of largeness—that is the greatest charm of the landscape, and we have but to look at the works of mas-



THE BELOVED WORK.

FEDORA E. D. BROWN.

ter painters to appreciate how great is this beauty. Corot, Claude, Cyup, Turner, and many others all show the value of this mellow light, and their canvases are eloquent records of the beauty of the earth when it is wedded to that of the sky.

The most difficult part of the landscape is generally conceded by artists to be at the horizon, and it requires a very nice judgment to introduce just the requisite degree of definition, and still have a certain amount of softness so apparent in the outdoor view. This softness, which is the effect of

distance, should not, however, merge into a pronounced fuzziness, or the effect will be a blurring of objects along the skyline: an effect which at once acknowledges a lack of skill in joining two negatives upon the print. Another common mistake is to overcrowd the space between the cloud forms and the horizon. This emphasizes the sky to the detriment of the landscape, and in the treatment of cumulus or large cloud forms, they appear to be unnaturally near the surface of the earth.

A high horizon is seldom a good selection and should be tolerated only in hilly country scenes. In a low, flat country a large sky piece is desirable, because it enables the photographer to depict the upper portion of the sky or clouds, which part will invariably be found to form the most interesting and expressive feature of the sky. Observation will show that clouds usually float at a considerable height, the exception being in the long, feathery rain and wind clouds. It should not be forgotten that there is a perspective in the clouds as well as in the landscape, and it is this aerial perspective that gives the effect of distance and makes the clouds appear low to the eye. If you look at the sky on a cloudy day you will note that near the horizon there is often an apparently clear space, and that the clouds appear smaller and less pronounced in shape as they approach this line. This is the effect of perspective upon distant objects, which by the interposition of the atmosphere so masses their forms that they blend into one tone. There ought to be no abrupt change or break in this merging of the sky and land, but the earth should gradually advance and unobtrusively blend into the sky, which in like manner will recede from the top of the view to meet the landscape.

Sunshine and air are the very life of a landscape, and this is, of course, more apparent in a low level country than in a hilly one. The gloomy, opaque-looking sky present in so many photographs is as unreal as an expanse of white paper, and expresses quite as little sentiment. We always associate the sky with light and air, and this quality is never absent. Under certain aspects the sky grows dark and threatening—as during a thunder shower—but even in this instance there is no appearance of that heavy solidity so vividly depicted by many so-called impressionistic prints. Certain conditions may some-



A STUDY.

A. GOMEZ GIMENO.

times suggests a walled-in effect, but these are uncommon transitory phases of Nature and hold no interest for the pictorial worker. Indeed, they should be included in the class with phenomena, and as merely accidental occurrences. Another pitfall which I would caution the serious camerist to avoid, is the home-manufactured sky, which for the past few years has been so persistently overdone. These crude representations are generally too unreal to suggest anything but meaningless daubs of pigment in the hands of a child. To work up a satisfactory sky requires about the same ability that is necessary to paint a picture, which skill few photographers possess. A desire to do away with the "white paper strip" may be taken as a good indication that the worker is on the right road, but do not let your eagerness carry you beyond the boundary of good taste. The camerist who seeks to break up this unattractive monotony by resorting to rough paper supports, bolting cloth, and other mechanical aids, can accomplish but little. A rough looking sky is hardly ever satisfactory, because it is almost an impossibility to preserve the most expressive part of the sky—its delicacy—by making use of woolly surfaces.

Upon a pleasant day the tone of the clouds is so light that we have no adequate means of representing their great brilliancy. The delicate modelling is but poorly depicted by the hand of man, and the contrasts of light with shadow is all but impossible to copy. We can accomplish much, however, by keeping the sky well away from the dark scale and seek to express its character by the gradations of the lighter tints. The sky should invariably be executed in a high key if we are to preserve its harmony with the landscape. A sky printed in a low tone demands a landscape wherein the tones shall descend to strike a balance, and this range of tones cannot be had unless it is desired to show the landscape as black as ink. It frequently happens that the chosen view is badly composed and that the fore, or middle grounds, slopes at a decided angle from corner to corner. This gives a one-sided effect which is even more noticeable if the clouds follow the same angle. This arrangement creates the impression that the landscape is doing its best to slide out of sight, and that the cloud is lending a helping hand to pull it forward. To prevent this unpleasant suggestion of lopsidedness we must balance the landscape,



DUTCH GIRL.

A. F. France.

either by introducing some object in the foreground, or by opposing the diagonal line of the hill by means of a cloud which will correct this one-sided effect. Perhaps you have noted when in a hilly country, how the land is often brought in sudden contrast to that of the sky. This effect is often very beautiful, although it must be admitted that such an arrangement robs the landscape of its aerial perspective—that delicate, harmonious blending of foreground and sky.

The photographer should not fail to take advantage of the works of landscape painters, both of the old as well as the modern school. Turner, Constable, Claude, Lorrain and Corot may be studied with pleasure, as well as profit, and the older masters of the Dutch school, Ruysdael, Potter, Hobbema and Van Der Velde, contain many an instructive lesson in cloud composition. In the works of the Dutch school, we find the sky the principal object of attention, and while the expressive simplicity of Ruysdael's skies are not often met with in Nature, it is by no means impossible to secure this breadth of effect by photography. Corot, Turner and Constable may be said to have painted true to Nature, and many of the latter's sky studies portray in a marked degree the familiar cloud forms so often seen in the summer season. One mistake that is common to many camerists, is the error of printing in a whole sky. This is seldom desirable, because very few cloud negatives will be found so well balanced that the entire plate is available. It is necessary to preserve harmony between landscapes and skies and this is best accomplished by simplicity of form and breadth of light and shadow. As a matter of fact, selection is quite as important in reference to the sky as it is in the landscape, and this point should be given the same careful attention.

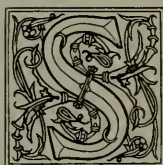
In concluding, the writer would caution the amateur to keep in mind the effect of the photograph as a whole, and to always endeavor to express in the finished print the particular impression which the subject created in the mind. Everything included in the view should be introduced with the one idea of embellishing the whole, and every detail, no matter how seemingly unimportant in itself, should be made to further the expression of this one theme. If this method is adopted there will be fewer photographs produced, but the few will be found of more value than several hundred of the usual kind.



L. F. BREHMER.

BROMIDE ENLARGING AT HOME

By MRS. FLORA M. COLEMAN.



OME time ago I wanted to make a large picture, and as 8 x 10 was my limit for plate work, and not caring to go to the expense of getting a larger camera, I thought of an article in the 1909 ANNUAL written by Arthur E. Mayer on Bromide Enlarging, which I followed with limitations.

First: I blotted out the light from the window with compo board, cutting a hole in the same for the back of my 8 x 10 camera. A shoe box of the right height, and a 6-foot board with grooved strips nailed in place, formed a sliding easel. The ground glass frame from my 8 x 10 camera was hung next to the window; a velvet ground glass was placed in the cut-out in the compo board, making two ground glasses with about 1½-inch space between them. I found this gave a perfect lighting for enlarging either plates or bromide paper. For plates I use my 11 x 14 printing frame, backed with black



PORTRAIT.

MRS. FLORA M. COLEMAN.

felt for a portrait with hard lighting. In this way I obtain all the softness wanted, and at the same time remove lines that would otherwise need retouching. Bromide prints have the appearance of direct printing.

A word as to retoned prints: if you like dark brown tones, give full exposure and develop to the limit. Eastman's direction for sepia tones will be found to produce excellent results.



PORTRAIT.

MRS. FLORA W. COLEMAN.



AT THE FORGE.

E. L. Crandall.



PORTRAIT.

MRS. FLORA M. COLEMAN.

SYSTEM

By RICHARD TROTTER JEFFCOTT.



ONE of my contributions to the previous ANNUAL covered my effort and experience in establishing a photographic plant catering to those desiring expert finishing, and the higher grades of Commercial and Advertising Photography.

Under a title "From a Hobby to a Business" a description was given which was intended to be helpful to some, and to suggest ideas to others who were interested in photography. Early in the present year I was in receipt of a letter from a gentleman who was desirous of knowing my system of operation, that is, pertaining to the method of caring for the "work" from start to finish. In reply I gave him a general idea, together with samples of forms, etc., and a promise that if the subject was acceptable to the Editor of the ANNUAL, a detailed description would be given—hence my reason for referring to last year's contribution, and a hope that the article may lead others to write what they have in this line found to be practical and easily managed.

System—the keynote of any business or action—covers such an enormous field that if one is not careful to prune cleanly, it may prove more of a bugbear than a help. The day is far past for the owner of any business to hope for success unless he has definite ideas of how to secure business, hold it, and a method of work that will help him to advance it and show clearly where he stands.

Having a definite idea of the line I was about to follow, and possessing a list of prospective customers and friends interested in photography, my first step was to arrange these names in order and purchase two card index files—No. 1 prospective, No. 2 actual. This work having been completed, using a typewriter and linen ledger sheets 3 x 5 for the purpose, I became acquainted with the fact that I knew of about 1,200 persons interested in my line, and that my best efforts must be employed to shift the sheets from Box No. 1 into Box



[Copyright by H. Hendrickson]

IN THE MONTH OF MAY.

No. 2. Others who came to me through actual work, or recommendation, were treated accordingly.

Note. This idea has outgrown its usefulness for Box No. 2, and these have been transferred into a loose leaf book—properly arranged for quick handling and reference—prompted by a better advertising campaign.

The start being made I proceeded to send out announcements and postal cards of original character directing attention to my special work—Bromides, framing, copying—lantern slides, etc., and before long the contents of Box No. 1 were gradually finding place in Box No. 2.

A good-sized order register now proved useful, and as this is the original entry it serves a two-fold purpose, as I shall explain. Under proper date and consecutive number, the name and address was entered—what the customer owned (films, plates, negatives, etc.) or desired done (article photographed for cut) or (building to be photographed). As these items are more or less but a guide—no special details need be entered until the completion of the work—it being necessary only to note the proper sizes, general data, location, etc.—the duplicate of the work ticket taking care of all special details. As each order is entered have your work ticket (in duplicate) (see cut) made out on the typewriter.

The original being held on file in consecutive order in the general work room, while the duplicate is placed on its special file in the various work rooms to which it has to pass in sequence of the “job” operation, viz.: dark room, printing room, bromide room, and framing. The operator taking hold of the work, first inspects the ticket, notes number on same and work bag, and if any variation is noted, as to size, etc., particularly regarding films and number of exposures on rolls. After each operation of developing, printing, mounting, etc., being completed, the duplicate ticket is turned back with the finished work, and the original ticket. The billing is now in order. When price is checked the job with bill enclosed is either held for call or delivered.

Into the “charge basket” the original and duplicate work ticket, together with the duplicate bill, is placed ready for charging. After day book entry the tickets are sent back for extension in the order register—positive assurance that

the “job” has been completed, charged and delivered. These three sheets together are filed in their proper place ready for immediate reference.

Now to go back: Suppose, as it frequently occurs, a phone message is received regarding a finished job sometime past.

WORK TICKET

No.

THIS TICKET MUST BE RETURNED WITH THE FINISHED WORK

Name

Address

City or State

Received

Finished

Promised

How delivered

CUSTOMER'S OWN

WORK TO BE DONE

REMARKS

RICHARD TROTTER JEFFCOTT

912-13-14-15 LIPPINCOTT BLDG.

PHILADELPHIA

Advice is given that my file holds the negative, or same is being sent or mailed, and a new order placed for bromides and framing. The clerk will refer to the customer's ledger account (I keep actual ledger accounts whether it be \$.05 or \$500.00); from the ledger the previous order number is noted—as To Mdse. No. 3,281. In the proper place No. 3,281 slips will be found—a card is inserted in the slip's place “out” with the “taker's” initials and date. Necessary data obtained,

and under a new number a similar outline is followed—original then returned to box.

The question of bookkeeping requires considerable attention. After various books were tried and found wanting, I purchased a Proudfoot Outfit of good size, loose leaf with leather index tabs and all securely bound for ready removal or change.

Keeping accounts alphabetically arranged, in place of folio numbers is the best, as the account number never changes, and when “dead” for a period, as in case of amateur work—mostly active from April to November—the account may be transferred and placed in the Transfer Binder until again “active”—making cost and work on each account the lowest.

It must not be supposed for a moment that a business can be operated on a cash basis, for a great number of the accounts are “charge,” settlement usually being made ten days after monthly statement is rendered. Then again, one must consider that your work will attract new people who have charge accounts with stores and firms doing amateur finishing in common with other lines, and to them an account is both a pleasure and an accommodation, because numerous items are hardly of sufficient moment for a check payment. One must consider many conditions in such a business, and from a personal viewpoint the system I have laid down, and the actual working of it, makes easy going.

We will go back a step and suggest ideas and methods regarding the handling of “work,” and the use of the duplicate work ticket. This, as I previously noted, must contain actual details, and to help along this idea I had two rubber stamps made—one, a hand with finger pointing and the word “ask” on same. This means that before the “job” is “in work” definite instructions must be obtained. On the duplicate work tickets which refer to printing, enlarging, mounting, a special stamp is used:

Paper
Size
D. M.
Mount.

In all cases reference can be made to the printing or enlarging paper used, whether it be contrast, normal or soft,



JIP.

BELLE JOHNSON.

sepia or black and white, mask used or not. In case the print is trimmed less than regular size—what size? Re D. M.—double mounting—the combination and color of card used, and the margin noted, or if on stock cards, color and size is noted, as No. 1214 Gray, or No. 841—10 x 12. These give one an opportunity at all times to furnish duplicate orders as per the original, and does not require the customer's explanation, except in case of change.

Regarding bromides, a further note is made where sepias are desired. F-tone—cold or hot bath or untuned.

Memory is poor at best where one is doing considerable business, and in many cases doing successful work that others will not handle, because it either upsets regular work—was too much bother—or take it to Jeffcott. My experience leads me to say that I have never lost a customer on special work, for I have found them willing to pay for the extra time and effort, and I have made many good friends who have proved fine advertising centres.

System also covers another feature worth mentioning, referring directly to the amateur who spends money more freely for good work, than some other classes, believing that were he or she in position they would produce only highly acceptable work for themselves. On receipt of a film order the rolls are taken from the bag, opened in the dark room and passed under a check protector, the order number being clearly punched on the film margin. After the various operations the film is cut apart and placed in the work bag and sent to the printing room. The printer takes the job in hand, notes the order number, sets his numbering stamp to correspond, tests it on a piece of paper for proof, and then stamps on the work bag—assurance being rendered that he is sure all correspond. In adjusting his printing paper the same is numbered, and there should be no hitch when the finished work after trimming is ready for sorting.

All prints of a size are sorted to a pile, then re-assorted to the "ten" number as in No. 5342—this print goes to "4". pile, and being quickly handled is placed in work bag and order ticket checked. A positive rule that no job be handled in any way without a work ticket, or specific directions, assures to you honesty and prevents loss of waste and time.

That this "System" has proved satisfactory backed by good work in building up a hustling business in less than two years' time, compelling me to move to a model plant now being constructed, must be an indication that my original idea of there "being enough people desiring first-class work at moderate prices" to pay for the venture is coming true.



A SUNLIT NAVE.

ERNEST CLAYPOLE.

FIREWORKS IN PHOTOGRAPHY

By HARRY GORDON WILSON.



THE taking of photographs of fireworks display at night is not as hard, or difficult, a job as one would imagine. Although the mere fact of attempting to photograph such fast-moving objects as skyrockets and bursting bombs, showing the course of same from the mortar from which it is fired, to its bursting point high in the heavens, would necessitate a so-called snapshot; but on the contrary, a time exposure of 10 to 15 minutes will faithfully portray every bomb, skyrocket and Roman candle that is fired. One should have a fairly quiet night, as the wind is liable to jar the camera at the time of making the exposure.

The illustration shown herewith is a view of one of Pain's \$10,000 displays called the "Eruption of Vesuvius," taken in 1908, 9:10 p. m., fine, clear, quiet night, a very little N. E. wind blowing. I viewed the display from outside the fence, so to speak, in order to obtain the distance needed between the kodak and the subject, that would enable me to secure the imprint on the film of the whole course of the bombs. I noticed from the finder that one block distance was not enough, so I walked four blocks away on the second evening, and the display this time was entirely covered in the field of the finder. I had noticed that a few moments before the eruption commenced a little red light appeared on the summit of the artificial Vesuvius. I used this to guide me in placing the kodak, so that this light appeared a little below the centre of the finder with ample space on each side, so that I would have plenty of room to gather in any fireworks that did not happen to go up in the perpendicular. There did not happen to be any buildings, or other obstructions, between the kodak and the exhibition, other than a few trees, and these did not materially interfere with the view. I opened the lens to F 6.5 immediately that the little red light above referred to was lit, keeping same open until the end of the display. The film was developed in the tank 20 minutes with Pyro. It turned

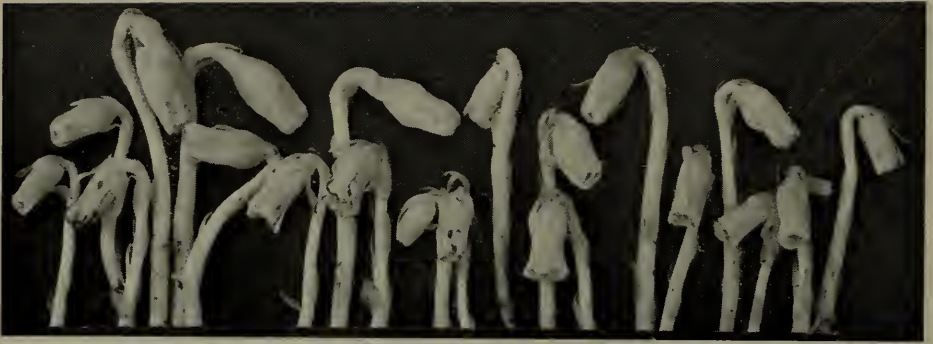
out to be O. K. in every particular. Notice that one or two of the bombs burst before attaining a great height. Of course, the colors of red and green did not "take," and a great many of the bombs gave out stars, etc., of these colors.

You will notice the horse near the clump of trees in the left hand corner of the foreground. This will give the approximate height attained by the fireworks, and the distance between the kodak and the subject.



ERUPTION OF VESUVIUS.

HARRY GORDON WILSON.



INDIAN PIPES.

NATHAN R. GRAVES.

FINGER PRINTS IN NEGATIVES

By H. G. FREW.



ANY photographers, both professional and amateur, have destroyed some fine negatives by placing exposed plates, prior to development, in a box, with the emulsion side against the glass side of the under one. Our manufacturers carefully pack their products in such a way that not at any time will you find the face of one against the back of another. Why should the photographer not use the same care on his part, and save himself vexation, and not lay faults of his own at the door of the manufacturer.

While handling a plate taken from the box to be dusted, and putting it into the holder, the fingers may come in contact with the back, or glass side, and an imprint of the finger is left upon it. If the next plate is placed face down upon this, the emulsion will take up this imprint of the finger, and when developed it will show in the negative.

If we would remember that an emulsion is a very sensitive surface, and easily injured, and put our plates face to face, and back to back, we are sure to have no trouble arising from finger imprints on our negatives.



A STUDY.

E. G. DUNNING.

LOCAL REDUCTION AND INTENSIFICATION

By WILLIAM H. ZERBE.



IN some recent experiments which I had been conducting, it was necessary to resort to some accurate local reduction and intensification on the negatives which I had been using. In some cases a very small area was reduced, and in others large ones, and again with the exception of small parts, the whole negative was reduced to clear glass.

The method I used I believe to be original, and worked so satisfactorily, I thought perhaps the readers of the *ANNUAL* may care to try it.

To a negative that requires reducing or intensifying locally, I apply a waterproof varnish, and which is also proof against the chemicals used, with a good camel's hair brush about one inch around the part to be reduced or intensified, having first outlined it accurately. After the varnish is dry, if to be reduced, a solution of Farmer's reducer is applied with a camel's-hair brush, or a pad of cotton, until the desired amount of reduction has taken place, when the negative is washed and dried. If it is desired to intensify that part, I find nothing better than the well-known sulphide toner or redeveloper. Apply the varnish as for reduction and bleach the desired part and wash thoroughly. Then apply the sulphide solution until the bleached part has turned brown. It is then washed and dried.

I use either of the following varnishes: celluloid, rubber cement and asphaltum. The celluloid varnish is prepared by dissolving 30 grains of clean celluloid in 1 ounce of amyl acetate. The celluloid is cut in thin strips so that they will dissolve more readily. This is perfectly transparent, and need not be removed from the negative, but if it is so desired, it can be done by saturating a wad of cotton with clear amyl acetate and rubbing it off, and finally with some alcohol.

Rubber cement is prepared by mixing one part of the commercial rubber cement, which can be purchased at any house-



A VISTA.

WILLIAM H. ZERBE.

furnishing store, with about five parts of benzole or benzine, or to about the consistency of thick mucilage. It is applied the same as the celluloid and dried before the other operations are started. This varnish a'so is transparent and need not be removed, but can be cleaned with plain benzine or naphtha.

The asphaltum varnish is prepared by thinning as bought with benzine, just thin enough to flow easily. This is applied in the same way as the celluloid and rubber, also dried, and as this is opaque, it is necessary to clean it off after the other

operations are completed, and must be done as soon as the negative has been dried after intensification or reduction has taken place. If done at this stage it comes off quite readily, but if left on too long it does not come off so easily.

When applying the varnishes it must be done so that the parts are thorough'y covered; otherwise the chemicals later used will eat into the uncovered parts. As a precaution to this I apply the varnish with two or three coats.

I find this method of coating with varnish to protect the parts where chemical action is not desired to take place to work very satisfactorily when it is desired to remove a background which is too insistent. For instance, a portrait which has an ugly background, the negative is treated with one of the above varnishes on the portrait itself, giving it at least two coats and outlining it carefully. When dry it is immersed in a solution of Farmer's reducer until the desired amount of reduction has taken place, or it can be left in until it is reduced to clear glass, which in the print will give black ground. This is a favorite method with me, using a suitable background negative to print in with the portrait, doing it in one printing.

This method can also be used for clearing the backgrounds in prints. Coat the image with the varnish as in the negative, and put in the reducing solution until the ground is all cleared or white, and washed and dried. With prints, though, the asphaltum cannot be used nor will the rubber work so well, but the celluloid works to perfection and can be removed or cleaned as in the case with negatives. I seldom clean it off the prints; instead, after the print is dry, coat the whole print with the same varnish which gives it a slight sheen, giving transparencies to the shadows as does the waxing solutions now so extensively used.

If any of the readers of the ANNUAL who have occasion for local reduction or intensification will give this method a trial they will find that very satisfactory results can be obtained.



MAY DAY.

KATE MATHEWS.

PICTORIAL WORK

By H. OLIVER BODINE.



HAVE often been asked the kind of outfit I use, and my methods of taking and working up the prints, which I have accepted for the various salons and exhibits in this country and abroad.

I have two outfits: a 5 x 7 Cycle Style Camera with extra long bellows extension to which I have fitted a special lens of my own design (which will be put upon the market shortly), a Sky Shade Shutter, and several Ray Filters. These, together with a good strong tripod and a supply of plate-holders, comprises the outfit with which I have done most of my negative taking. My other outfit is a film camera fitted with the ordinary rapid rectilinear lens, which I carry with me on my trips where the larger outfit is too bulky and cumbersome to handle.

The lens which I mentioned is one which will give negatives as soft or with as fine detail as might be desired. The focal length of the one I am using, which is a 5 x 7, is 9 inches, which I have found ample for a plate of this size, as I seldom use more than a portion of a negative measuring more than 4 x 5 inches. By using this lens at its largest aperture, F/6, I can obtain those beautiful mass effects without double images, obtained with the usual portrait lens, and others which have been suggested for pictorial work. By decreasing the size of the aperture, the image becomes sharper and at F/16 the lens can be used for view purposes and for negatives which require the finest of detail. I very seldom use a shutter, preferring to make my exposures with a piece of cardboard, which allows me to give more exposure to the foreground than to the high lights.

My developer is the ordinary M. Q. or Eikonogen, made up about one-half normal strength. My negatives are developed rather thin, as I have found that those beautiful soft tones can be preserved only by so doing.

It is very seldom that I do any doctoring or working up of the negative, as I aim to eliminate this when making the ex-



II. OLIVER BODINE.

posure. I have confined myself so far almost entirely to bromide enlargements made from these negatives, but next season will try out the enlarged paper negative method, which I believe will open up a new field of endeavor to me.

While in the East I talked with a great many amateurs who seemed anxious to get into pictorial work, and without hardly an exception their conversation ran similar to the following: "I wish I lived in your city, for then I could be where some of these subjects were that lend themselves to pictorial composition and make *pictures*." My answer invariably was that in all the cities, towns, etc., that I visited in the East I found innumerable bits of landscape, etc., which would make ideal subjects for the work, and that it was not necessary to go far from their home city to find suitable subjects. If they would study up on composition, lighting, etc., and when the opportunity presented itself to see the American Salon, or other exhibits of pictorial work, they should avail themselves of the opportunity, and select from among the exhibit several which were simple in composition and lighting. Study them and get out and try to duplicate as near as possible those which they had selected. I am of the firm belief that if they would do this the results would more than please them, and they would find themselves progressing in that which they so much desired. Avoid bird's-eye views, and confine yourself to simple subjects such as one or two birch trees, a rail or stone fence, an old farm house, and other simple subjects to be found in every locality. Have one object in the picture predominate. This can be done by having that object in focus, and the other planes in the picture softened, so that the last planes in the picture have no detail, but when the eye finally rests upon them they are so soft and restful that the person looking at it wishes that there were more to the picture. It leaves a pleasant recollection that is not soon forgotten. Composition, lighting, planes, etc., are very hard subjects to explain in the limited space which this ANNUAL permits, but excellent little pamphlets or books treating on the same can be obtained at nearly all dealers in photo supplies.

In conclusion, I might add that I have shouldered my camera and walked from early morning until evening, and have returned home without ever making an exposure. This is a



IN WINTER'S GRASP.

H. OLIVER BODINE.

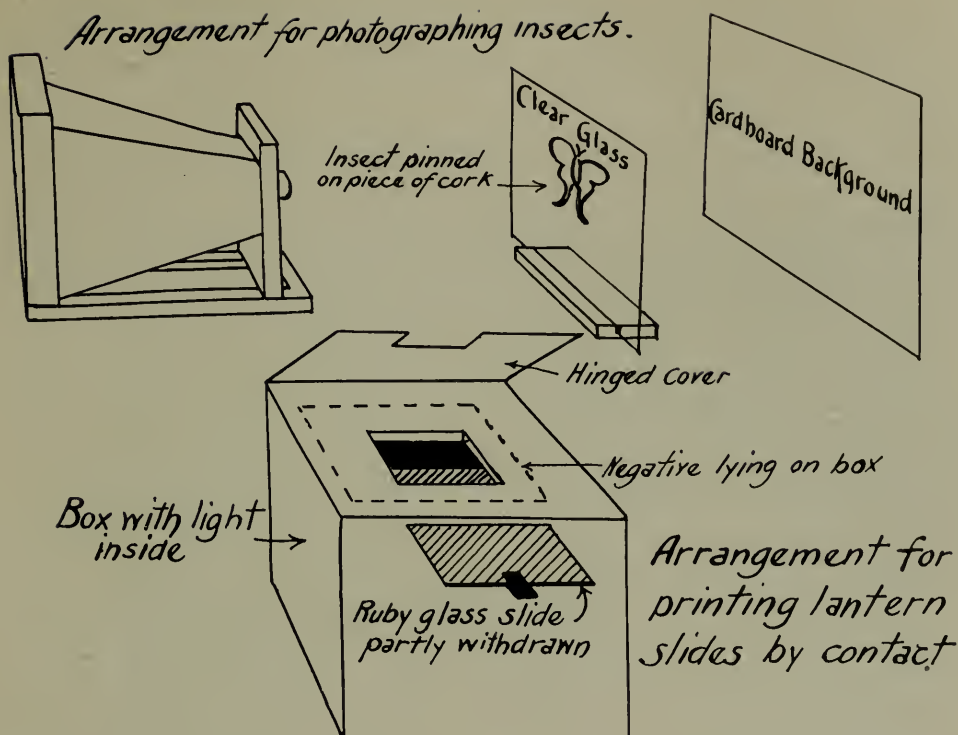
very hard thing to do, for those who have been in the habit of loading up for twelve or fifteen exposures, and taking them simply because they did not want to return without exposing their plates or films. To overcome this it is necessary that the pictorial worker be able to cull the good from the bad, or in other words, see those bits of nature which go to make a picture, so to speak, or one which tells a story. If they would confine themselves to taking pictures of this kind, they will find at the end of the season that, instead of having several hundred negatives, and as many prints, which are of no especial merit or interest, they will have a dozen or so negatives from which they can make prints that will be a source of pleasure to them and some of which will, no doubt, find their way into the Salon or other exhibits, and be the means of giving great pleasure not only to themselves, but to a great majority of those who see them displayed on the wall, together with their brother and sister workers in that most interesting of photographic pastimes—pictorial photography.



SUNLIGHT AND SHADOW.

H. OLIVER BODINE.

Arrangement for photographing insects.



INSECT PHOTOGRAPHY AND LANTERN SLIDES

By GEORGE RETTIG



IN making photographs of insects, and other small objects, for use in my work with the Forestry Department of the city of Cleveland, I am using an arrangement whereby a white background may be obtained without shadows, even with oblique lighting.

The insects are pinned to small pieces of cork glued to a clear plate of glass. The background is placed far enough away from the back of the glass to prevent shadows falling on it and the photograph is then made.

The lower illustration shows a method of printing lantern slides by contact from portions of large negatives. To use it the light is turned on in the box, the ruby glass slide is withdrawn to allow the light to shine through the $3\frac{1}{4} \times 4$

inch opening on top, and the negative is arranged over this, so that the required portion is illuminated. The hinged cover is then lowered, the opening in it coinciding with the opening in the box, and serving as a guide in placing the lantern plate.

The ruby glass slide is pushed back, covering the hole, the lantern plate is put in place, and a cloth-covered weight is laid on the slide to insure contact and cut off any possible light from above.

Withdrawing the slide makes the exposure. Test pieces can be made by withdrawing the slide a fraction of an inch at intervals of a few seconds, or advantage may be taken of the fact that the side of the negative which is first illuminated by the withdrawal of the slide receives a longer exposure than the other, thereby giving one the opportunity of exposing the dense portion of an unevenly lighted negative longer than the thinner portion. These ideas may not be new, but I have never seen them in print.



TWO WARRIORS.

L. F. BREHMER.



KATHLEEN.

William Crooke.



SISTERS.

CHAS. C. KOUGH.

PHOTOGRAPHING CHILDREN AT HOME

By H. M. GASSMAN



ANY years ago there appeared in one of the photographic annuals an article by Falk, the well-known photographer, on "Photographing Children." Ever since reading that article I have been interested as an amateur in trying to emulate his work. Fortunately for me, I have no studio to use for such purposes. My subjects I find in my home, on the street, and in the homes of my friends and neighbors.

The essentials of my outfit are:

1. A fairly rapid lens with quiet shutter.
2. Rapid plates for indoor work.
3. Patience.
4. Tact.

It is not necessary to enlarge on the material part of the equipment, except to say that a background has not been included. I do not consider it necessary, but, on the other hand, it can be used very frequently to good advantage. I often depend upon finding something in the house if I need a background at all, and I have used anything from a shawl to a rubber piano cover. The principal thing to avoid is placing the background so close to the subject that it is in focus, and that a shadow of the subject is thrown on it.

Photographers tell me it takes patience to photograph grown people. Much more, however, is required for children. It sometimes seems as if the only time they are good is when asleep, but even sleeping beauties do not usually make good pictures.

You can make up your mind that your best results will be chance pictures, and that you will spoil many plates before getting a prize; but, once secured, you will realize that the prize is worth the cost. So make up your mind to be patient, or give up.

Very often you can make much progress by studying your

subject for some time beforehand and trying to get the child's confidence and good will amid the surroundings you wish. It is then but a short step to introduce the camera and get the impression—provided the light is propitious and the child in good humor.



THE DAY DREAMER.

H. M. GASSMAN.

This humor is dependent largely upon the excitability of the grown-ups in getting the child ready for the picture. Then, again, long before the time for the final posing, I have observed father, mother, sister, grandpa and the nurse trying to

aid in getting the right expression by fussing with the child, beating the air and making hideous sounds. About the right time to make the exposure they block out the window light and finally upset the camera, when, of course, you wish their mistaken kindness was not so unbounded. Use tact and strategy until you have no more help than you need. Then get interested in the child's game instead of trying to interest the



THE WATER NYMPH.

H. M. GASSMAN.

child in your game, and you will have abundant chance to get as many impressions as you have plates.

Children in their own home, with familiar surroundings, can't help but be natural and, therefore, at their best. A likeness under such conditions will be superior to any made under artificial conditions and strange surroundings.

It is a mistaken idea that a skylight is necessary for a successful indoor portrait. I may even say daylight is not really necessary. The illustration, "The Water Nymph," was a com-



PORTRAIT.

C. F. Townsend.

bination of daylight and flashlight taken without the child's suspicion of what was going on.

The other illustration, "The Day Dreamer," represents a mood suggested by a sentence or two spoken at the critical time. It could not be duplicated by a professional with the same subject, simply because I had studied the child, posed her in her bedroom, and got her interested in a familiar view out the window. Yet she was aware that her picture was about to be taken.

Some subjects are not so good as others, but any subject can be made good by artistic and natural treatment, and I maintain that, as a rule, the latter can be best obtained under home surroundings, even though it means bringing the professional into the home.



FRIENDS.

SAMUEL DORAN.

ACTINOMETER VERSUS GUESSING

By G. W. ALLYN, M.D.



MEETING amateurs on my summer outings, I am astonished at their manner of making exposures. Most of them in a happy-go-lucky manner, snap-shot at everything in sight, with absolutely no regard for light, time or place; others more serious are seen struggling to apply a series of tables based upon the "month," "day" and "hour."

A few, and only a few, are equipped with an actinometer, and employ what is the only scientific method in timing exposures.

There are several well-known factors which determine the proper length of all exposures: the plate speed, the size of the diaphragm opening, the character of the subject and the light. Most of these factors are well understood and easily adjusted mechanically, but the light which is the dominant one and upon which everything depends, is most complicated.

We know, and may notice, that the intensity of light varies constantly from hour to hour and from minute to minute; but it is impossible for the human eye to know its quality.

Of the colors into which the prism divides light, the yellow-orange impresses our eyes most powerfully, giving us our sense of illumination, but it is the violet, and even the invisible ultra-violet rays, which affect the chemical changes in the plate and make the negative.

What, then, is necessary to make correct exposures, is to know, not what the *illumination* might be on any parallel of latitude on some date and hour, but just what the strength of the photographic light is upon our subject at the instant of exposure.

Fortunately with a silver paper as an actinometer, the chemical activity of any light is determined with the greatest ease. Since this light factor is so easily and accurately determined, it seems little less than folly to juggle with "exposure tables." This attempt to arrest the attention of our amateur, and to



THE CLOISTERS OF EREMITI,
PALERMO, SICILY.

G. W. ALLYN.



MOTHER AND CHILD.

RUDOLPH DUHRKOOP.

suggest a scientific way of getting his exposure times in the only accurate manner, may seem gratuitous and unnecessary, and so it would be, if books on photography were not publishing these tables as a "rational method."

To-day an English drug firm is giving away an artificial "method" to advertise their photographic goods. The successful amateur must be an expert, for he attempts everything from seascape to forest depths, using every intensity of light in the scale. By comparison, exposure in a studio is simple.



"DOVE COT," WORDSWORTH'S COTTAGE.

G. W. ALLYN.

Light here is regulated and the intensity reduced to a well-known standard by curtains. If our amateur travels, scenes are thrust upon him of the most varied kind. He must act quickly and accurately, with no chance to return and correct failures.

As a fact, most travel pictures are bad, and if taken in poor light, very bad, from under exposures. This is not necessary.

In 1899, using an actinometer, I made five hundred tripod exposures in and about the English cathedrals. Some years after this Horsley Hinton, the great English photographer and editor, visited America. He made many exposures on film packs, and developing them on his return, he wrote in his journal that he had hopelessly over-exposed them all. My actinometer told me before I had made an exposure that the actinic light of England was, in general, twice as slow as our light in America, and I had no such failure.

In these notes I have in mind only the *principle* and not the kind of actinometer. There are several upon the market. A friend of mine is wedded to a scheme in which Solio is his test-paper. It matters not so you test the actinic strength of the light.

Two prints are submitted to show that with an actinometer no extremes are too great to secure full and proper exposures.

"Dove Cot" or "Wordsworth's Cottage" in the Lake District of northern England, was taken in the rain, which is a usual condition there.

"The Cloisters of Eremite" in Palermo, Sicily, were taken in sunshine so strong that the natives all use large dark goggles.



AN INSTANTANEOUS FLASHLIGHT.

GUSTAV DIETZ.

INSTANTANEOUS FLASHLIGHT PHOTOGRAPHY

By GUSTAV DIETZ



FLASHLIGHT photography is no novelty. It is very nearly as old as photography itself, and improvements in this branch of the art have pretty well kept pace with those in other directions.

There were many persons in the beginning who needed flashlight exposures for covering commercial orders; others experimented for the fun of it, and mixed their own powders. Some died, but the ones who survived added more and more to the sum of the knowledge on the subject.

The powder considered the best, and one which manufacturers are striving to perfect, is the powder that gives the most illumination and burns up in the shortest possible time, since the ultimate aim is to produce one to work instantaneously. Following the improvements in powder, flashlight photography has found its way to the hands of amateurs, and quite successful work has been accomplished using the different means

employed. Cartridges and flash sheets have made it fairly simple and safe.

The more general introduction of flashlight into homes has, however, served to make its limitations generally known. The user has often found himself as much handicapped as he would be with a cheap photographic instrument restricted to a relatively slow exposure. Such instruments have only a little more speed than the quickest flashlight powder—claimed to burn up within $1/25$ part of a second. As this speed is entirely insufficient to eliminate even slow movements, such as the winking of the eyelids, or the muscular movements of the mouth in talking, the operator with flashlight is limited to posed figures for his subjects, and that is why flashlight pictures mean to the average mind forced positions, staring eyes, and the general suggestion of the sitters' gathering their nerves to withstand the shock of the powder's explosion.

Another objection to the flashlight photography of the present is that it is largely limited to night-time or darkness. This is because the lens is left open a considerable time before the flash and after, and an otherwise good plate might be spoiled by too long exposure to accidental ordinary light.

The remedy for these conditions, and the means of opening up a new field to the flashlight photographer, is to be found in *Instantaneous Flashlight Photography*—at last made possible with the advent of the Multi-Speed Shutter.

This shutter, as most of the readers will be aware, works between lenses up to extremely high speeds. An ingenious electrical device has been perfected by means of which the shutter is released during the maximum illumination of the flash at a high speed. Results obtained by this method set a new mark in flashlight work. The shutter, being a between-lens instrument and exposing the whole plate at once, is the best shutter that can be used for flashlight work, whereas shutters of the Focal Plane type are entirely eliminated on the proposition, as their sectional exposure over the plate lasts longer than a flash. Therefore the plate would receive full illumination only at that instant when a flash reaches its full illumination. This lasts probably $1/100$ part of a second. With such high speeds as the Multi-Speed Shutter is capable of it is a comparatively easy matter to cut in and make



THE NOVICE.

S. J. BECKETT, F. R. P. S.



LIGHT AND SHADE.

ERNEST CLAYPOLE.

a high speed exposure during this short interval of full exposure, providing the flash and shutter are timed properly and work in unison.

A simple attachment designed for this purpose does all the work automatically, and it may interest the reader to follow a short description of the whole apparatus and accessories.

In the first place a new flash pan is used. It is so designed as to do away as much as possible with the round or balloon shape of the old flash, and make it thin and fan-shaped, with the flat side toward the object. This shape is not only more advantageous, but it does away with the old result of losing a



HEAD OF DOG.

F. C. BAKER.

lot of illumination from the side away from the object, which the density of the "balloon" itself reflected away from and not toward the proper direction. Furthermore, amount of powder necessary for a certain job is not set off in one big flash, but is burned in two or more small flashes. The reason for this is that in a small flash the powder burns more quickly, hence the relative time of increase and decrease is less, and the flash is at its maximum illumination longer. There is also a smaller column of smoke to interfere with the light traveling.

The number of flashes is varied according to the field to be

covered, and all are exploded by means of small powder fuses. The ordinary house current furnishes the best power, but the smallest sets of pocket batteries will readily explode four or even five flashes as long as they are in good condition. The flash pans are placed to suit the desired light effect; nearer together to give stronger light, and further away, or with less powder, to give the effect of reflected or diffused light. Any effect, ranging from plain, strong, or diffused daylight to the sharp effect of the present flashlight exposure can be regulated to any degree. By using several flash pans not alone a proper and softer effect of illumination is achieved, but also a considerable increase of illumination.

It is practically impossible to burn a large amount of flash powder so quickly that the whole diameter of explosion will give even illumination. The flame, or bottom, will have died out and left only smoke by the time the corners and top are giving light, and this light is not nearly as strong as that of the main part of the flash. If the exposure is made when the bottom and the centre of the flash have reached maximum intensity, a great amount of powder is left to burn after the shutter has closed.

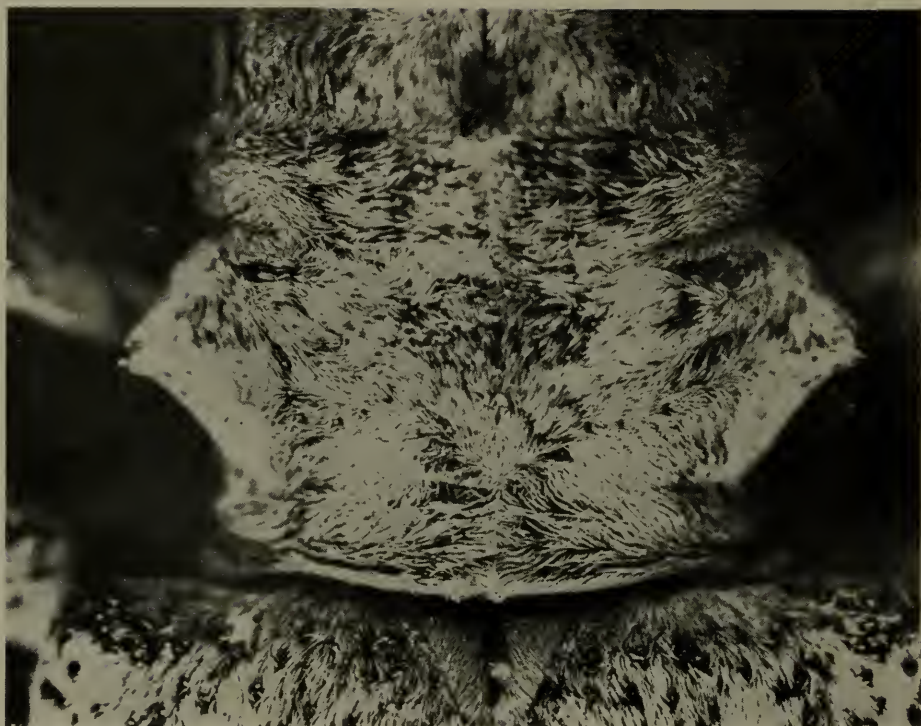
Under this system the number of flashes can be determined individually by the operator. For portraiture, busts and half figures, two flashes diagonally to one side can be used for the strong light, and one weaker flash on the other side for reflection and shadow effect. The same arrangement would hold good for speed work near at hand, for outside scenes, and for speed work that would require a greater distance from the object. As many as ten flashes can be employed (though this is an extreme number) without failure from explosion, providing connections are made properly, and an electric light current is used.

The apparatus for timing the flash and shutter so that they work together is very simple. It is nothing but a carefully ground cylinder and piston, the piston being actuated by a strong spring and its speed regulated by air. The piston starts to travel as soon as a small catch is withdrawn, which action makes the electric contact. The piston after traveling a certain distance touches the shutter release, resulting with an exposure exactly at the maximum intensity of the flashes.

The air regulation is provided so that the timing can be changed to suit the different speeds of various flash powders that might be used. It is better, however, to stick to one kind of flash powder and not change around.



WILLIAM GILL.



A BEETLE WHICH HAS A PROTHORAX
THAT MAKES US THINK OF AN
ORNAMENTED FUR COLLAR.

EDWARD F. BIGELOW.

THE FOCAL DISTANCE TO OBJECT, NOT TO PLATE

BY EDWARD F. BIGELOW



THE focal length of a lens is commonly thought of as the distance from lens to plate when the lens is focused. Thus one may take a photograph with a lens nine and one-half inches from the plate, and the object photographed be a mountain a mile or more away. When the distance from the lens to the object is greater than the distance from the lens to the plate, the result is a photominimograph (if I may be permitted to coin a new word). As nearly all photographs are photominimographs, we have not felt the need of a distinguishing

word. We have been accustomed to call all such photographs simply photographs, and to use descriptive words only for the few pictures that departed from the usual form. That is, a photograph of an object greatly magnified is a photomicrograph. For these a microscope objective is used. A photograph of an object magnified to a smaller degree, using a short focus camera lens, is conveniently designated a photo-



HOW THE STAMENS "BACK OUT"
OF THE FLOWER BUD OF SPIDERWORT.

EDWARD F. BIGELOW.

macrograph, although there are no hard-and-fast lines between a photomicrograph and a photomacrograph. Perhaps there is need of still another name for a photograph similar to the half tones, made from photographs, that the engraver refers to as "SS"; that is, "same size."

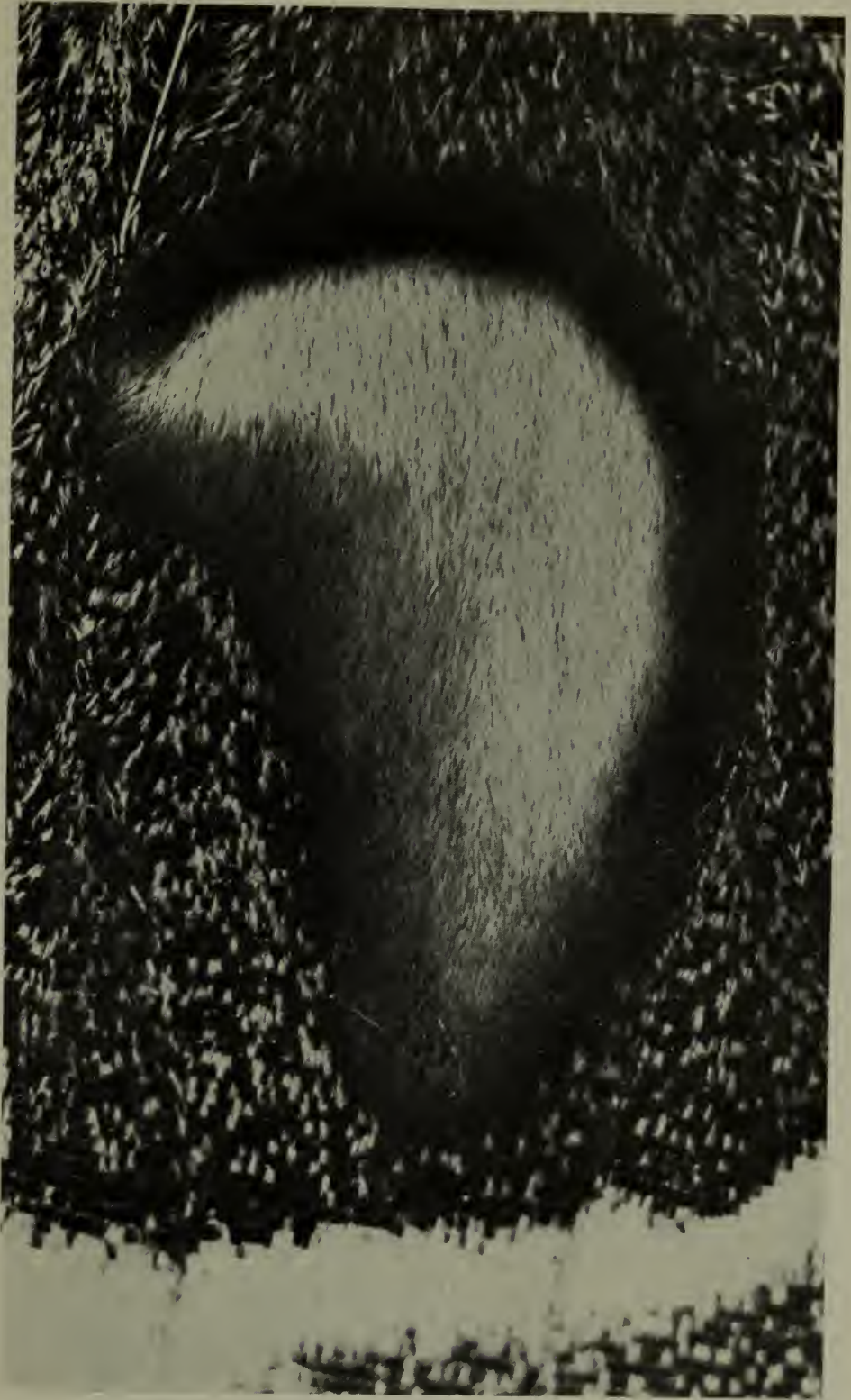
But I am inviting the reader's attention in this article to those photographs in which the *object* is in the focus of the

lens, and the plate farther away. This method invariably enlarges. We may leave to the technical scientists the enlargements with microscope objectives (photomicrographs), but enlargements with short focus lenses (photomacrographs) offer a fascinating field for the amateur. (There are also microphotographs in which the picture of the object is so reduced in size that a microscope is needed to reveal it. These are common "Oh, my!" objects among microscopists. The Lord's Prayer, celebrated paintings, photographs of human beings are often seen.)

If you have a kodak or other small camera, and have been snapping this promiscuously and picturing minimized dogs and Lilliputian people, now aim it carefully as a long range gun and picture Brobdingnagian grasshoppers, flies, seeds, feathers, parts of plants and other little things of nature made big.

Take the lens out of the small camera and attach it to the small end of a long cone or tapering box. The box form is most conveniently made. Close the small end of the box with a board in which you have made a hole as wide as the diameter of the screw of your lens. Screw in the lens. No shutter will be needed. Fit a large holder, 5×7 or $6\frac{1}{2} \times 8\frac{1}{2}$, to the wide end of the box. No focusing device is needed, because you are not going to change the distance between lens and plate, but between lens and object, and this is best done by moving the whole thing. The small object may be set on a pin or a block, and the apparatus on a table or an elevated bench so that the plate end of the camera may be conveniently reached, and with all in the same plane. I advise, with say a three to five-inch lens, that the length of the camera be not less than four feet. In my own work, I use a four-foot bellows and on the front of that a conical projection of about a foot in length. With such an apparatus, whether elaborately or crudely made, you are prepared to "make the most of" photography; that is, you "magnify" your calling, as well as the object. Bring the object into careful focus, stop down the lens very small for great depth, and give plenty of time.

You may have been taking minimized cats on doorsteps, with the lens at its focal distance of perhaps three inches, in perhaps one-fifth of a second. If so, forget all that speed. With a katydid three inches from the lens, and the lens five



THE EYE-SPOT AND ARRANGEMENT OF SURROUNDING
SCALES ON WING OF CECROPIA MOTH. EDWARD F. BIGELOW.

Illustrating article "The Focal Distance to Object Not to Plate,"



THE SEEDS OF BURDOCK.

EDWARD F. BIGELOW.

feet from the plate, the situation is different. Give at least eight minutes in acetylene light; somewhat less if in sunlight, and at least double if in lamplight.

Such a camera-microscope is extremely interesting for use merely as a microscope—an especial convenience if instead of ground glass you use plain glass and a focusing lens. In many respects, it is, when used in this way, more convenient than a compound microscope, and for some things fully as effective. And, besides, it can be used to examine, under high power, the surface of objects too large to be placed on the stage of a com-

pound microscope. In the old-time days of amateur microscopy, there was current the saying by Fabricius, "*Natura, maxime miranda in minimis*"—nature is most to be admired in those works which are the least.

Let us apply this to modern amateur photography. Photomicrographs, such as those of scenery, people and elephants, are so reduced as at best to be but souvenirs, and not so effective as the original familiar objects. But photomacrographs show us the world of small wonders and interests to better advantage than the originals, because they aid eyes to see things as they are.

It is the object, not the plate, of which you want a good record. So put the object at the exact distance for the best grip of the lens—that is, at the focal point of the lens, and the plate far away, the farther the better—as far as you are willing to go and to provide time and the expense of making the long apparatus.

In the accompanying photographs the objects were three inches from a Celor of that focal length. The plates were from three to five feet from the lens.



THE "DARK ENTRY,"
CANTERBURY CATHEDRAL.

R. S. BRUCE.

MY FAVORITE DEVELOPER

By V. SERIN



IN THE olden days with only one or two to choose from, the selection of a developer did not cause much trouble; but now with so many on the market, one really wonders which to select. Now that the theory of correcting errors of exposure in development is exploded, a one-solution developer is convenient.

After considerable experience with various developers, I have made my choice, viz.: Amidol, and, for a general, all-around work developer, it is, in my opinion, hard to beat. I have now used it solely for over five years, and have had no cause to change it. There is one thing to notice, and that is, I use it weaker for plates than is usually recommended, in fact, I think that the majority of the formulæ given for various developers by the manufacturers might with considerable advantage be used in a more diluted state.

I hold no brief for any chemical manufacturer, so what I write is from experience, and with the hope of helping others. There is one disadvantage with Amidol, i.e., it will not keep in solution more than four or five days, but as it easily dissolves, this is not a great one. Moreover a freshly made developer of any kind always works better than a stale one. I make up 20 ounces at a time, and I have a piece of lead equal to the required weight of sulphite, and one for the Amidol. This saves calculating what weights to put on the scale. The formulæ is as follows, and should be dissolved in the order named. Warm water if you like, but not hot, but in this case it must be cooled to 65 to 70 deg. F. before use:

Sodium Sulphite (Pure crystals).....	650 grains
Potassium Bromide	10 “
Amidol	50 “
Water	20 ounces

The above strength will do for plates, bromide and gas light



THE BRAINSTORM.

GEORGE F. HOLMAN.



"WHILE THE BLIZZARD RAGED,"
WASHINGTON MONUMENT, N. Y.

W. A. RUDSTAD.

paper, and lantern slides. There is no need to use an acid fixing bath, in fact, rather the reverse. A plain solution of Hypo 4 oz., water 20 oz. is all that is required either for plates or prints. It is not necessary to wash between developing and printing, providing plates and paper are covered and moved the first few seconds of immersion.

The advantage of Amidol as a developer for plates lies, to

my mind, in the beautiful, soft, well-graduated negatives that it gives. For portrait work it is beyond all others, and for negatives to be used for enlarging from it cannot be beaten.

With reference to Bromide prints Amidol has one prominent feature, and that is, with a correctly exposed print, it is impossible to over-develop it—development stopping automatically, for what reason I cannot say. If the developer given is diluted with an equal quantity of water, it will yield exquisite grey tones on Bromide prints with a certainty of freedom from stains that is not met with in any other developer.

Development of a plate is complete in from three to four minutes at 60°-70° F. For hot weather this developer is without a rival, being used without any alkali there is less chance of frilling; at lower temperature it works better than the majority, being less affected. It will do for any plate from ordinary to panchromatic, and yields a clean negative.

One word of caution. Amidol in solution *does not stain*, but, if the dry powder is allowed to remain on the hands, the result will be a bad stain, caused by the natural moisture of the hands combining with the Amidol.



AUTUMN FRUITS.

JOHN BOYD.



DEAR OLD NANTUCKET.

GEORGE P. SWAIN.

RECOLLECTIONS

By C. M. GILES

*"How dear to my heart are the scenes of my childhood,
When fond recollection presents them to view."*



WHEN years accumulate, and miles separate us, from those localities where our earlier years were passed, it is with genuine pleasure that we can look over pictures of those well-known scenes, even if we do find that many changes have taken place during the passing years. But if we can find one or more that portray everything "as it used to be" in those halcyon days, how much more intimate a feeling of retrospection it calls into being. A visit, with a camera, of course, to such places of personal interest, by any person past middle life, cannot but arouse mixed feelings. There will be pleasure at the securing of that which is yet unchanged, and of that which



THE WATERFALL.

EDITH L. WILLIS.

fortunately is unchangeable; but also regrets that much is so changed, or has passed away, that, after all, there must be a feeling of incompleteness in most cases.

And this brings to mind the great opportunities which the younger people of this generation enjoy that the older ones were denied in their youth, before the days of "pressing the button." Now, in the days of their youth, they can secure, with slight trouble or expense, views that in later years will seem invaluable to them. And yet how few, probably, are awake to the extent and value of those opportunities, and are taking advantage of them while they exist. Dwellers in the smaller cities, villages, and the country especially, have in this a most fruitful field for photographic exploitation, which they should work to its extreme limits. To be sure most young people do, in a desultory way, more or less that would commonly be classed with such work. But what I mean is a consecutive, logical, chronologically arranged series of views, methodically preserved in some permanent arrangement that would assist in telling a life story, if desired. There is no time like the present, and delays are dangerous to this plan, as in all things mundane.

And in case a family history is undertaken by some member of the family (a fascinating, yet sometimes perplexing and aggravating, occupation), these pictures become doubly valuable, if well selected and properly executed, as illustrating the text. And here let me suggest, incidentally, that every family should possess a carefully arranged genealogy of at least the more recent generations, even if there is no desire or opportunity of tracing back to preceding centuries. Once begun, however, the temptation is to try to extend the record back, and yet farther beyond. But the lack of a careful record, or genealogy, has frequently been the cause of litigation and loss to one or more members of the family. Our daily papers frequently contain accounts of costly endeavors to trace pedigrees for legal and financial purposes. It is surprising to find how little the average person seems to know of, or care about, the history of the family—possibly in a few cases at least with good reason. But to the average family it is more important than it seems at first sight. The clannishness of some families is proverbial, and things genealogical are a

fruitful source of jest and ridicule; but a not inconsiderable part of sacred and profane history is made up of, or founded upon, genealogical data. The writer has to thank the persistent efforts of two relatives, in compiling and forwarding data about the family, for the original stimulus that has resulted in many interesting and profitable hours of research, much interesting correspondence, pleasant visits, and a collection of highly-prized views, souvenirs and literature. Reader, take the hint and "go thou and do likewise."



PORTRAIT.

JOHN A. JOHNSON.

A TRAVELER'S CAMERA

By WALTER J. CLUTTERBUCK



S all those who have used a camera must know, there is always a certain difficulty about photographing when your object is to take satisfactorily work-people *at work*, idlers *idling*, or children playing. Even in our very civilized country, it is not easy to take a picture of this sort so that the persons represented should appear to have been unconscious of your presence. We all know the charming country woman in apron and sunbonnet, who is most obliging, but begs for five minutes in which to change her gown, or the boy with a wheelbarrow, who becomes a graven image the moment he sees the camera pointing his way. How we have all struggled, and I hope patiently, with the awkwardness of our casual models!

There is often more difficulty when abroad, as probably you may not be able to speak the language of the country well enough to make yourself satisfactorily understood, and although the light is often better for photographing, still endless minor troubles will arise which make your picture unsatisfactory and not quite to your liking. One often longs to get a natural picture of the varied groups of strange people, strangely dressed, that one sees in traveling. Yet how impossible this seems without spending hours of time and trouble and making yourself disagreeable and unpleasant to the simple natives whom you wish to depict. The appearance of an ordinary camera at once changes natural charm to affected or self-conscious poses, or dissolves one's chances of a picture for good and all.

In traveling in the Far East, it is especially difficult when the crowd is actually antagonistic to being photographed, either from religious scruples, from superstition, or from fear. For instance, it seems almost impossible to take a snap-shot of a Chinaman, for he fears the camera as we should the Devil, and a snap-shot of a Chinawoman is almost out of the question. We have visited two other countries where the people are par-



A CHINAWOMAN.

WALTER J. CLUTTERBUCK.

ticularly averse to being photographed, viz : the Lu-Chu Islands in the North Pacific, and Kashmir. In the latter, no respectable young woman would ever remain where the European eye could behold her face. In the Lu-Chus, a European face and European clothes were such a novelty that, although you might be stared at by every native, male and female, in the Island, it seemed to be always from behind a door or screen, and photographing them was an impossibility.



IN THE KHYBER PASS.

WALTER J. CLUTTERBUCK.

It is in the East, however, that the more intimate and private concerns are settled in the open air ; all the buying and selling is done at stalls, at booths, or in open-fronted shops ; a good deal of personal washing, and all garments are washed in the open ; many trades, such as hair-cutting and shaving, are carried on in the streets, and often both in China and India, we have seen children being taught in a school which consisted only of a high roof to protect them from the sun's rays. How

more than disappointing it is to lose pictures of native life, which would be of so much interest to those who cannot see them for themselves, and how irritating to the photographer when the natives seem instinctively to detect his presence and at once hide their faces and hurry out of focus.

Instead of arousing suspicion and causing bad feeling amongst your would-be models, the question is—how to deceive them? Not that you mean to take any unfair advantage, as you know that they cannot be injured in any way by your ac-



A MONASTERY, KASHMIR.

WALTER J. CLUTTERBUCK.

tion. There is a way, a delightful invention, by means of which no suspicion is aroused, and absolutely natural and unique pictures of native life may be obtained. The camera referred to, and used for the pictures reproduced here, looks almost exactly like a field glass. At the ends, where the large lenses of a binocular are usually located, useless pieces of dark-colored glass are let in to represent lenses, but these are

merely sham, to deceive the uninitiated. In looking through the binocular a small reflector is arranged, so that you see the image which you wish to photograph at right angles to the way the binocular is pointing. Two lenses also correspond, and you can take a picture either to your right or to your left. So, for instance, if you wish to photograph a group on your right-hand side, you appear to be looking through your binocular at the distant view straight down the street, and the group is thus utterly unconscious of your intention, or that they are being "snapped." Thus you get rid of one of the greatest difficulties which photographers have always had to contend with in unknown lands. It is made for stereoscopic work, but if you prefer to expose each half of the plate separately, this is easily arranged by covering one lens at a time with a small black disc, supplied by the vendors. After exposure, the plates can be cut in two. The actual Zeiss lenses are inside the camera and do not appear unless it is examined closely. The camera holds twenty-four exposures (or twelve stereoscopic) and filled with its glass plates, weighs exactly three pounds, five ounces. The little plates are, as near as possible, two inches square, and as the glass of these is extraordinarily thin, a box containing twenty-four exposures only weighs six and one-half ounces. Supposing we leave home with this little camera and ten boxes of plates, the weight of the whole, including the camera, will only be about six pounds, ten ounces; this includes 240 exposures. If you want to travel far, and into unknown regions, it is impossible to credit the advantages to be gained by always carrying, slung over your shoulder like a field-glass, a minute camera for plates, and one which renders the "sitter" perfectly unconscious of your intentions. It is true that the pictures are small, very small, but as they are taken with good lenses, any efficient photographer can enlarge them satisfactorily for you up to any size you may require. It is generally recognized that a film-carrying camera is not so satisfactory as one adapted for plates. Films are more susceptible to damp and extremes of temperature than plates, but plates are, of course, much heavier to carry about than films. Something often seems to go wrong with a film, and when working with them you may find that a picture which is thoroughly distinctive in character and should prove quite an exception to the



THE BRIDE.

S. H. Lifshey.



REDWOODS.

EDGAR A. COHEN.

ordinary run, has failed, through no error of your own, but—merely because it was taken on a film with some slight fault in it. In addition to these considerations, films are much more expensive than plates, yet we fear that almost everyone will prefer the lightness and convenience of a film-holding camera, even with its risks. Plates are, of course, very susceptible to changes of climate, but *not nearly* so susceptible as films.



TULIPS.

HARRY D. WILLIAR.

FLOWER PORTRAITS

By ALICE L. BECHT



WHY always a flower photograph, with a light background, a stiff, unnatural arrangement, and a sameness of tone through the use of a color screen for color values? *Why not* a "Flower Portrait," a veritable "Picture" in light and shadow, with background as carefully chosen, and setting as skilfully arranged as for a beautiful woman? (Or one who wishes to appear beautiful.) All flowers, I think, will be found adaptable. Beginning in the early Spring with "Blood-root," "Hepaticus" Violets, and the dear little pink and blue "Quaker Ladies," with a few of the pretty grasses they grow in, through Rose time and late Summer, with its Asters and Dahlias and Cosmos, right up to the time of "Japanese Beauties." Sweet Peas arrange beautifully, and can be placed in almost any vase, low or tall, with good effect.

Unlike many whose opinions I have read, I believe a beautiful vase adds charm to a flower picture, instead of detracting from the charm by diverting attention from the main object. In fact, should you come from the fields and woods with a great mass of different flowers, you will dispose of them by first choosing what they will look best in, with an eye to harmony, or contrast of color. (That, of course, will not matter in taking a picture, but shape and general harmony of lines will count.)

So, first the vase, then the place, with background dark or light, as desired, or seems most effective; velvet draperies, a small picture well placed on the wall, or a small book on the table, all help when needed, and it seems almost inevitable that a stray flower or so should make a break for liberty, and cast reflections from their mahogany bed back at those captives drooping above.

Generally, I like a strong light coming from a considerable angle, as in the "Chrysanthemums," which I secured by pinning



CHRYSANTHEMUMS.

ALICE L. BECHT.

my rolling shade at the bottom of window, and drawing out the centre part to admit a narrow stream of light, and using a small reflector which I kept in motion to cover all shadows.

Where there are flowers of different colors, it is sometimes well to place those that will photograph light (such as blues and lavenders) in the deepest shadows, and the yellows and reds in the strongest light, as they are apt to take too dark. I find, too, that the white flowers, in strong light, are apt to show strong halation.

Ordinarily I use a portrait lens with No. 8 stop (No. 16 is too definite for me) and rather rapid plate, as I live near trains



IN THE ARROYO HILLS.

Louis Fleckenstein.



KILLARNEY ROSES.

ALICE L. BECHT.

which cause considerable vibration. A good, full exposure and development gives chance for local reduction, which, as with a human portrait, is of great advantage.

I well remember my first attempt at a "Flower Portrait" of some "Killarney Roses," I could not resist buying from a street vender. They were beautiful, rather loose, and of a deep pink in the shadows, with a decidedly lighter edge. They were glorious to look at in a pale, soft yellow "Rookwood" vase, placed on a shadowy corner of my library table, and I wanted to "Picture" them just as they were with the deep shadows and lights and reflections; but the abandonment and grace of the flowers so carelessly arranged I found would have to be changed on account of the focus, so that, when the roses were finally arranged for the lens's eye, they were far from a pleasure to look at. In fact, this has been the only trouble I have experienced in picturing flowers of the long stemmed, or droopy kind; it is necessary to keep them in a stiff arrangement almost in line—toward the front, although a little blurring for distance effect is very good. Pins and fine wire are great aids, and where a straggly effect was wanted I fasten the very "Northernmost" one with a long hatpin, and thus secure a fine "Japanesque" effect. I have done that also with "Nasturtiums" and got a most unusual picture, different from the ones you sometimes notice, exemplifying the advantages of Ortho plates and color screens. I paint (with water colors) many of my "Flower Portraits" and the result financially, as well as pictorially, has been all that could be desired. They make particularly handsome calendars when suitably mounted, and well worth framing when the year is past, as they are all printed on platinum, and will endure for all time, practically.

The chrysanthemums and roses, without mats, in one and one-half inch ebony and bronze-gold frames respectively, were conceded to be (by an admitted crank and critic) "Veritable Little Gems."

So, all ye flower worshippers, let them not blush unseen, but "Picture" them and place in a handsome album worthy of their loveliness, or on the wall, to flaunt their beauty and receive a long, long glance.



THE BASKET SELLER.

LEWIS J. FITLER.

TRI-COLOR FILTERS AND THEIR "CUT-OUTS"

By R. JAMES WALLACE.



N practically all of the tri-color volumes, and also the articles in the photographic and technical journals dealing with the subject of tri-color work, the illustrations presented of the "cut-out" action of the respective filters is shown diagrammatically as in Figure 1.

	Blue	Yellow	Red	
Blue filter	B	Y	R	Yellow print
Green filter				Red print
Red filter				Blue print

Fig. 1

Because of its frequent usage every color operator will instantly recognize this diagram and will also at the same time recognize its utter falsity in so far as his actual working results are concerned.

In this modern age, and at the present stage of the knowledge of tri-color, there is really no legitimate excuse for the publication of this diagram, which conveys an entirely misleading conception.

To take up this point in detail, we find that if an operator tacks up with the "copy," three solid patches of his tri-color inks, that generally—the result through the red filter is practically a solid yellow and three-quarter tone red. Through the green filter the yellow is rendered practically as a solid, but the blue is nearly as transparent on the negative as is the red; while the result through the blue-violet filter is that the blue is about half (or quarter) tone; red the same, and practically transparent yellow. This is shown in Fig. 2.


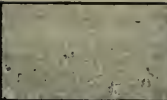

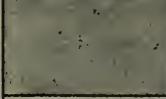

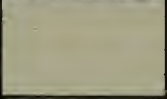
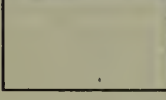


	Blue	Yellow	Red	
Blue filter				Yellow print
Green filter				Red print
Red filter				Blue print

Fig. 2

Of course the operator getting this result in almost every case blames the filters, and casts about for some change in their dye constitution which will achieve the happy effect shown in the diagram of theoretical action, but with the result that while such change will perhaps show improvement on some one color, yet it is at the expense of some other. Then, of course, he blames the plates.

If we, however, give consideration to the matter, this discrepancy in results is easily explainable.

To begin with the filters, it has been determined definitely by independent authoritative workers, that the best results are to be obtained if the red sensation negative be acted upon by light extending from the extreme red end of the spectrum to wave-length 5900; the green from wave-length 6000 to 4900, and the blue-violet from 5000 to 4000, and that the filters should present sharp and abrupt absorptions. It does not make any difference whether the filters be "liquid" or "dry" so long as their absorptions are correct; also, there is no *secret* in the use of any particular dye stuff, for there are dozens of such that can be made use of for each filter. It simply depends upon the *amount* of dye used to give the correct absorption. This is absolutely a matter of spectrographic practice, which can merely be approximated by visual methods.

It is also well known that for correct reproduction of a colored object photographed through the filters the inks in which the plates are printed should be complementary in hue to the color of the filter employed. The red filter transmits red and yellow—therefore an ink complementary to this

should transmit blue and green; in other words, it should not possess an ultramarine shade at all, but be distinctly green-blue in color. The usual "tri-color blues" supplied by the ink-maker are in this shade very far from requirements.

The green filter transmits yellow-green, and blue-green, therefore the ink to be complementary should transmit red and blue, or, in other words, should be magenta in hue; most of the inks now available are too crimson in hue, i. e., do not reflect sufficient blue.

The blue filter transmits the blue and blue-green, hence the ink to be complementary should reflect red and green, i. e., yellow. In trade a large number of the yellows transmit also the blue-green fully and occasionally, some blue. It is in this falsity of ink hue that we find *one* reason for lack of "clean cut-outs," and the second is in the matter of luminosity or relative brightness.

In the three color patches, red, yellow and blue set up on the copy-board, it will be evident at a glance that the yellow is the brightest of the triad, i. e., has the highest luminosity—yet no matter how high, it is yet inferior in luminosity to the white paper on which it is printed. Next in order of brightness comes the red, while the blue is of still lesser luminosity, and reflects very little indeed compared to the white paper; for the sake of clearness let us give numerical values to the colors which will be represented about as follows:

White paper.....	100
Yellow patch.....	50
Red patch.....	40
Blue patch.....	10

Considering now the "cut-out" on the negative through the red filter we obtain the highest opacity on the portion corresponding to the white; next in order comes the yellow which also acts strongly upon the plate, because the yellow (which is composed of green and red light) is first transmitted wholly in the red and partially in the green by the filter, and second, because the plate used is sensitive to these hues; in other words, the plate is being acted upon by the combined effect of *two* hues and to both of which it is strongly sensitive, so that the only reason why this color does not impress itself as strongly as does the white (which is also acting with but the same num-



TABLE DECORATION.

S. J. BECKETT, F. R. P. S.

ber of hues) is because of the loss of light in the reflection from the layer of ink. The red patch is fully transmitted by the filter, and acts upon the plate with light of one hue, the blue which the ink reflects being absorbed by the filter, hence it is not represented by so strong a deposit.

Suppose that a certain patch of magenta red reflected 50 units, together with a portion of the green, plus the stronger graphed through the red filter the 50 units of blue would be definitely absorbed, leaving only the 50 red units to affect the plate, obviously one could not expect equal action compared to say—the white paper which has 100 per cent. active red units, together with a portion of the green, plus the stronger reflection of the hues from the unprinted paper.

The “cut-out” action of the green filter is (generally speaking) subjected to more adverse criticism than either of the other two, chiefly because the operator is not sufficient of a color student to appreciate how much red enters into the general color composition of a view or object, but also due to the imperfections in the hues of the blue and red inks, which preclude the obtaining of correct color shades by their admixture.

The negative of the blue color patch through the green filter (according to the theoretical diagram) should be shown as a solid—but *it isn't*. Instead it is generally represented by but a very light (one-quarter) deposit. This result is due first to the amount of red in the ink (which hue is stopped by the filter) and second to the excessively low luminosity of the ink. If the blue printing ink patch were of the proper hue—blue-green, then the large amount of magenta-red, printing over the blue, would not only be allowable, but necessary; for a pure blue could only be produced by the red and blue-green, both printing heavily. This point shall again be referred to presently.

The red patch photographs with practically clear glass because these hues are absorbed by the green filter before they reach the plate in cases where a slight deposit is evident, it is due to the blue reflected by the magenta and partially transmitted by the filter.

The yellow patch is represented on the plate by the densest deposit (exclusive of the white paper) which is, of course, as



A HOME PORTRAIT.

Jane Reece.



PORTRAIT.

MEREDITH JANVIER.

it should be, first because of its high luminosity, and second because of the entire transmission of its green rays and partial transmission of its red rays, the plate being strongly sensitive to green.

The negative through the blue-violet filter shows its strongest deposit upon the blue patch, but such deposit is very far from solid in comparison with the white paper. If this deposit was opaque, then it would be impossible to reproduce the blue save in abnormally high luminosity. The yellow is necessary in order to avoid "rawness." Magenta-red is generally shown as a patch of half tone shade (because of the blue reflected from it and transmitted by the filter) while the yellow patch is shown as more or less transparent according to the shade of yellow employed, and because the blue filter absorbs the red and green component rays before they reach the plate. The effect of any particular yellow reflecting also the blue-green or blue would be, of course, a deposit on the plate, because these rays are transmitted by the filter. Occasionally one meets with operators who make use of a blue patch selected because of its being particularly *light* in shade—true, it represents the identical same blue, but nevertheless, while solid, it has been run light. With this patch they get "a better cut-out" on the green and blue-violet negatives, but in reality it is not so; the negative deposits are heavier simply because of the higher luminosity of the patch, i. e., the white paper reflects through to a greater extent, and the operator is simply deceiving himself.

Recognizing that statements without proof are occasionally hard of belief, it has been considered advisable to reproduce here a set of tri-color negatives properly timed and equally



Fig. 3.

developed as showing (in black) the actual distribution of the three primary colors (Fig. 3). The original is printed in solid colors from litho stone and was copied by daylight. All three exposures were developed together for the same length of time. The prints from the negatives were made simultaneously on one piece of paper—developed equally, and fixed. Another set of prints on bichromated gelatine was made from the negatives, and developed alike in warm water, fixed, washed and cut apart. These were then dyed in their respective colors, with dye mixtures made up to be complementary in hue to the filters, then washed, dried and assembled. These dyed and superimposed films, together with the “copy” will go forward with this MSS., and I shall ask the Editor to insert here whether in his opinion, they reproduce the copy, particularly in the blue, where the red is printing practically solid.* Of course there has been absolutely no attempt at retouching or “faking” in any way. The prints correspond to a flat etch.

It may be emphasized that the greatest present hindrance to successful tri-color work lies in the incorrect hues of the inks supplied the trade. The problem of the inkmaker is not an easy one, because he has not only to get the hue—but an ink that will be reasonably permanent and also transparent. Assuming, however, that such were readily attainable, they would supply neither skill nor brains to either the operator, etcher, proofer, or printer. Three wrongly exposed negatives, or different plates of unequal gradation value, will never give more than a rough approximation of the copy—unequal development time is equally bad, and exposures made without some form of neutral grey scale included on the plates—are a few of the most common faults of the average operator. Conversely, unequal printing on the copper plate, or unequal etching would amount practically to making one of the prints too light, or underdeveloping one of the negatives. Again, it must always be remembered that the dyed plates herewith reproducing the copy will *only* do so when the dyestuff is of the proper depth of tint—an increase or decrease from this point in the amount of color on any one of the films means an alteration of the respective hues of the copy. Now if this slight change in the color of any one (or all) of the three

*The copy submitted by Mr. Wallace was an exact reproduction of the color chart, showing identically the same shades of color.—EDITOR.

films results in falsity of hues, it should be sufficiently obvious that it but serves to point the necessity for special care in the proofing of the copper plate. Proofs of varying depths of each color should be made, and under all circumstances when good results are worked for, these proofs should be pulled from the plates after their first flat etch.

It must also be remembered that although the "cut-outs" illustrated in Fig. 2 represent what may be termed a "mean" for the various hues of the so-called "standard" tri-color inks, yet the relative values of these deposits will vary with the shade of ink photographed. This much, however, may be taken as axiomatic, viz., that with the filters and plates whose combined use results in the action of light of the wave-lengths specified above, the negatives will represent the true analysis of the color patches—i. e., each negative will represent the correct amount of each color necessary to reproduce again the original patches, *provided that the plates are printed in inks that truly reflect hues complementary to the "taking" colors.*

That correctly hued printing inks constitute a point of greatest importance in the success of the work may be appreciated by the following illustrations, viz.: Suppose that a perfectly etched set of plates made from properly exposed and developed negatives, made through standard filters, are now ready for the proofer. If we print our red plate in, say, green ink, we know without the exercise of any particular amount of thought, that the entire result will be wrong, because we are (nominally) 100 per cent. off in color. But if we were to proof it in a transparent vermilion ink we should approximate more the "copy" because we are only (say) 50 per cent. off—another proof in crimson ink would be still nearer the original because we would be only 20 per cent. wrong in hue. It will therefore be evident that even *perfect* "separation" plates will give results far from the original because of wrongly hued inks, the amount of error depending solely upon the perfection of the printing color. When we consider that this error in hue is multiplied by three for the various plates, it may readily be appreciated that the ultimate proof, without re-etching, is liable to present a somewhat discouraging result.



THE STORY BOOK.

MARY CARNELL.

It appears to be a fixed rule with the majority of color operators to regard everything outside of their own experience as being subject to grave suspicion; just why I am unable to state. The attempt to help them on correct principles of their own business is generally received in anything but a grateful (or even courteous) way. Surely the man who brings a perfectly unbiased and properly cultivated mind to the study of any subject, and who for years is under considerable financial outlay by the purchase of delicate apparatus for its investigation, is entitled to consideration, even from the individual who (because in a rule of thumb way, he does the same thing, day-in-day-out) is termed a "practical" man. One might consider that the *most practical* man is he who understands by competent study the theory of the science he works with, and combines with that the merely mechanical experience in the handling of the necessary trade tools.



JUNE DAISIES.

GEORGE P. SWAIN.



THE BOATMAN.

E. L. CRANDALL.



HILLSIDE PASTURE.

J. F. WILDE.

THE OIL PROCESS FOR PICTORIALISTS

By WILLIAM H. KUNZ



THIS is a very simple process that has some great possibilities. The advantages are great control of local modification, soft or contrasty prints at will, unlimited range of color, and cheapness. The prints possess a unique property in that they carry very well, and are just as interesting at ten feet distance as they are at one.

The principal materials required are a "Fitch" brush, say, No. 12 size Sinclair, some carbon double transfer paper, final support, and some ink. The ink may be a good quality litho ink, or if that is not obtainable, special inks for the oil process are made by several makers. Any of them will work perfectly when properly used. For the most certain results use a smooth surface transfer paper. As broad an effect as may be desired can be secured by varying the brush action so it is unnecessary to use rough papers. Personally I have had the best



LUCY_

LUCY.

L. A. Dozer.

results by using a Sinclair brush and Encre Machine Black Ink, sold by Geo. Murphy, Inc., New York.

The operation in detail is as follows: Cut a piece of transfer paper about an inch or so larger each way than the negative you intend to print. Pin it onto a board, ready for sensitizing. The quickest method of sensitizing is by using a spirit sensitizer and brushing it on with a Blanchard brush. The "brush" is a couple of pieces of heavy flannel, folded over the end of a piece of glass and held in place by a rubber band. It is best to use white flannel, as some of the colored ones crock, and are liable to stain your print. The sensitizer is a 5 per cent. solution of bichromate of ammonia mixed just before use with an equal amount of wood alcohol. In sensitizing, tip your board, holding the paper at an angle of about 45 degrees, in order to prevent the solution collecting in pools on the surface. The secret of success is to charge your brush fully, but do not use enough so it will run down your sheet. Start at the top of the sheet, brushing from one side to the other. The next stroke should just overlap a little, and so on until the entire sheet is covered. Next, go over the sheet again, going from top to bottom, until the surface is all covered. By keeping the brush well charged with solution, and by changing the direction of brush strokes you will have a sheet sensitized evenly and free from streaks. Be careful that no sensitizer gets on the back of the paper. Drying in a warm place takes about five minutes. The paper must be bone dry before printing.

The best negatives for printing are fairly plucky, such as would make good P. O. P. prints. Use a safe edge around part of the negative as a guide to proper printing, and later for testing the ink. Print until the highest light is just tinted as compared to the part protected by the safe edge. The detail should all be visible except from the very highest lights. Now, soak the print for thirty minutes in water at a temperature of 75 degrees, changing the water each ten minutes. This will swell the gelatine and put it in condition for inking. The print is then transferred to a pad composed of four or five blotters full size of the print which has been soaked in water and laid on a sheet of glass. This is to keep the print moist while inking it up. With a knife or spatula take a small piece of ink (about the size of a pea will do) and spread it out on

another clean piece of glass as thinly as possible. Now, remove the surplus moisture from the face of the print with a piece of cheese cloth, or lintless blotter, and you are ready to start inking up. Hold the brush vertically and dab it into the ink, lightly, a couple of times. This is to distribute the ink evenly on the brush. Test the ink on the unexposed edge of the print that was under the mask. If it does not take ink there but does where the light struck, the print is all right to start on. Begin inking in the corner and apply it by gentle dabbing all over with the brush. The kind of stroke used has a very marked effect on the way the print takes ink. A heavy pressing stroke will deposit ink over everything, while a light tapping stroke will deposit it on the shadows, and not on the high lights. The best average stroke is a quick dab that hits the paper with just enough force to make all the hairs of the brush touch, but not enough to make them spread out much. A very slight pull to the brush as it strikes the paper will give a much smoother texture to the print. The ink as it comes is usually too stiff, and either does not take at all onto the print or is too contrasty. The addition of one or two drops of boiled linseed oil will probably thin it enough. The best results are secured by lightly inking the print all over first with a stiff ink and going over it later with a slightly thinner one. The addition of one drop of oil to the ink makes a very marked difference, so it is always best to try it on the edge of the print first.

As I said before, a heavy stroke deposits ink, and a light tap lifts it if the brush is clean. In case any part of the print looks too heavy, you can lift the ink by dabbing the brush on a dry piece of clean paper and then lifting it an inch or so above the print and dropping it on the surface, catching it on the rebound. This is called "hopping," and with practice can be done very rapidly and with surprising results. Shadows can be lightened or high lights cleaned up very easily. The smoothest texture is obtained by using a fairly thin ink with a light, quick stroke. A stiff ink and a heavy stroke produces a very granular print that is not very satisfactory. The rule I follow is to thin the ink by adding one drop of oil at a time until it takes very freely on the exposed edge of the print, but does not stain the unexposed part when I use the regular light

tapping stroke. This makes hopping unnecessary, and gives the very finest detail. A slightly heavier stroke will deposit this ink over the highlights when desired.



LITTLE MOTHER.

C. F. CLARKE.

DOCUMENT PHOTOGRAPHY—ITS USE IN THE COURTS

By WILLIAM J. KINSLEY



THE first step in a contested questioned document case should be to photograph the entire document natural size. Then to enlarge all of it, or any disputed or questioned parts to the degree necessary and in the way deemed to best show the facts. These natural size photographs should be made, if for no other purpose, merely as a permanent record. There have been cases that have shown the necessity of just such a record. Documents in dispute have been damaged either designedly or accidentally, or have been lost or stolen—hence the necessity of securing accurate copies of them in their original condition.

A witness to a forged will in her anxiety to account for all of the unusual features of the document testified with emphasis and particularity about just how all of the blots on the instrument were made at the time of signing—including several blots which were made in the Surrogate's office some months after the document had been photographed! The witness did not know that the document had been photographed.

It is a great saving of wear and tear on the original papers to have photographs of them.

For court use, photographs are very helpful as then all parties interested, court, jury, lawyers and witness, have the same thing before them at the same time. The witness's explanation can be followed much better and the peculiarities pointed out can be observed then and there—and not forgotten, as they would be oftentimes, when the jury retired for deliberation.

It is also useful to have several sets of photographs, so that they may be placed in the hands of several examiners, bankers, attorneys, etc., at the same time during the preliminary investigations.

Photographs frequently disclose things unobserved by the naked eye. Patched and overwritten lines, erasures by chemi-



STUDY.

ARNOLD GENTHE.

cals or abrasion, differences in ink tints, differences in pens used, breaks in continuity of writing, underlying pencil lines, writing over folds in paper, tearing paper before or after writing, etc.

Chemical erasing stains being in most cases yellow, and the ordinary photographic plate being very sensitive to yellow, the faintest of stains, scarcely discernible to the naked eye, are reproduced much stronger on the negative—in some case plain enough to read what appears only as a faint yellow smudge in the original.

The "James Connelly" illustration (Fig. 1) shows a case of this kind. The defendant was indicted for giving as security for a bond, a house and lot he did not own. The Bail Bond

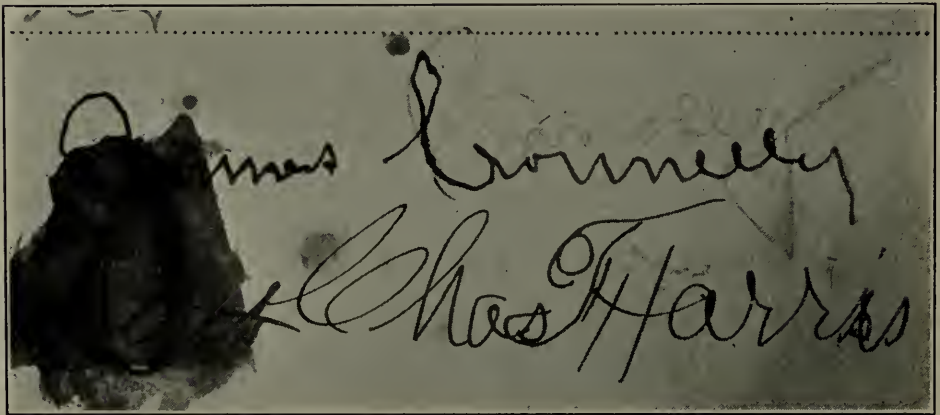


Fig. 1.

Enlargement of questioned signature showing name "James Connelly" twice. Faint writing reproduced because of yellow stains left by erasing with chemicals.

Book was a public record. After he was indicted the defendant said that the name signed to the book was not his signature. And when the Prosecutor looked again, he found that the original signature had been erased by chemicals, the same name written over it—but in another handwriting, and a big blot put over part of the signature. Photographs were made and the faint yellow stain read "James Connelly." The expert for the prosecution testified at the trial that the faint writing was in the handwriting of the defendant. An expert for the defendant, who was in court, prepared to testify that the second or overwriting was not in the hand of the defendant,



DESPONDENCY.

ARTHUR W. WALBURN.

immediately after examining the photographs took his hat and left the courtroom.

Writing faded toward yellow will photograph quite black and thus make it plainer in the photograph than in the original.

Color screens or ray filters are useful in many cases in catching any bit of color; and of course orthochromatic plates are often a necessity.

For enlargements over three diameters it is better to place the filter over the object, as it gives sharper definition.

By the use of contrast ray filters any color in the writing or document may be emphasized. Sometimes it is necessary to use a filter to correct the background in the paper—manila for example—or to exclude some extraneous thing—for example, a red blot on black writing, etc.

A transmitted light photograph will nearly always show differences in inks, thickness of strokes, quality of line, writing over fold in paper, retouching, patching and overwriting—if these things are actually present. Two ink strokes that look practically alike to the unaided eye, when photographed by transmitted light, will show that two different inks were used.

Transmitted light photographs are also useful in showing watermarks, and wire mesh marks in paper; also the fibre of the paper. Sometimes erasures are shown up best by transmitted light.

Photographs are essential in many cases, because it is necessary to make a juxtaposition comparison. After photographing and printing the disputed and standard documents natural size, the parts necessary for comparison can be clipped from the prints and be arranged and pasted on thin cardboard or heavy paper. These clippings thus arranged can then be further enlarged up to any desired diameter. This makes a fair and effectual way of making the comparison and of showing the facts. If the writings are actually unlike, it will be easier to see their unlikeness when enlarged in this way. On the other hand, if the writings are alike, this fact will be demonstrated by such an enlarged comparison.

Comparisons cannot be properly made unless the writings to be compared are brought side by side; and for persons unaccustomed to making such comparisons (jurymen for exam-



PLAIN CLOUDS.

J. M. Whitehead.

ple) it is absolutely necessary to have the things to be compared arranged in this way.

There can be no reasonable objection to the use of photomicrographs. It would be as reasonable to object to the use of a microscope, or for that matter, to the use of eyeglasses by the jury or witnesses. Some few judges have ruled that only photographs of entire documents may be used. When a twelve diameter (one hundred and forty-four times) photograph of parts of a document is offered, arranged on prints 11×14 inches, it will be readily seen that if an entire document $8\frac{1}{2} \times 11$ inches in size was enlarged to the same degree, a document eleven feet long would result; and the point aimed at—close comparison of significant characteristics—would be eleven feet further away than in the natural size.

While bromide enlargements may occasionally be useful, in the great majority of cases direct enlargements are better since they give sharper definition. If an enlargement greater than the dimensions produced by the camera is wanted, the document may be photographed in parts and the parts cut and fitted accurately and then joined by binding tape.

A suitable document camera should have five or six feet belows extension. It should have an object board that can be readily removed; and have a rack and pinion permitting forward or back motions by the operator from the back of the camera by means of long pulls. The board should also have oscillating, horizontal and vertical movements.

The camera proper travels on a bed, actuated by rack and pinion.

Levels should be placed on the object board standard and back of the camera, so that object and plate may be kept perfectly parallel. (Fig. 2).

It aids in sharp focusing if a few cover glasses are fastened by means of Canada Balsam, heated, on the ground glass side of the ground glass.

Cut-outs made of light wood (stained black), heavy paper or light cardboard, allowing two or more exposures to be made on one plate, are useful. They are placed in front of the ground glass at back of camera.

THE CAMERA¹

A transmitted light holder, consisting of a base working on rack and pinion and moved by long arm from back of camera, by the operator the same as the object board, and two upright posts with clamps to hold the document, is necessary if transmitted light photographs are to be made.

THE CAMERA STAND.

It is advisable to have a camera stand that will permit the camera being used at any angle between the usual horizontal and vertical; and for transmitted light it may be necessary to incline the stand to an angle of 45 degrees.

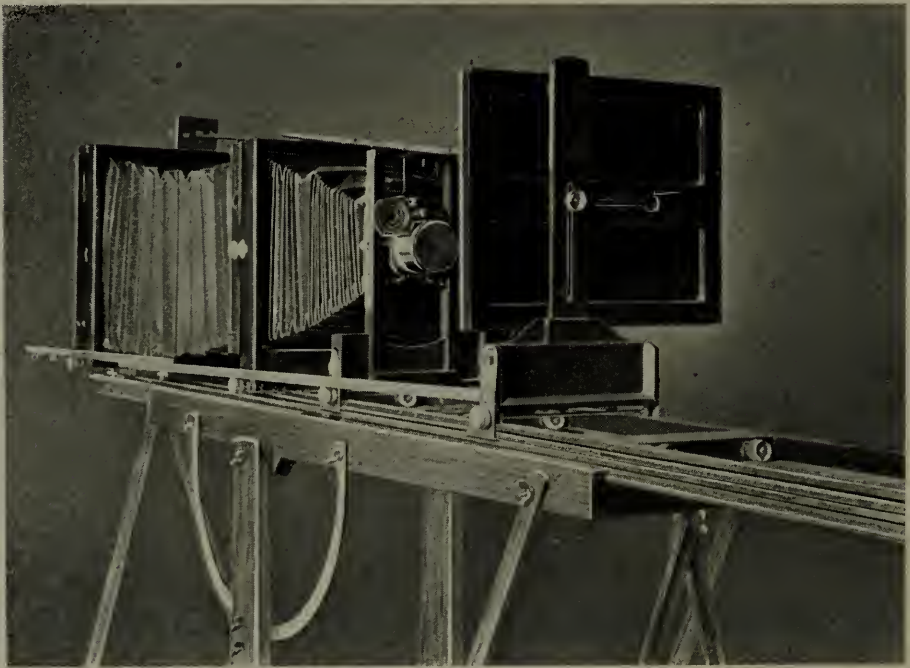


Fig. 2.

Document camera showing adjustable and detachable object board, tilting and adjusting stand, etc.

If much traveling is to be done with the apparatus, the stand and camera should be of the "take-apart" kind for convenience and safety.

The camera bed should be marked with indicators, locating positions of object, lens and back of camera for different enlargements made by each lense used. (Fig. 2).

¹This instrument and the stand were designed by Mr. Albert S. Osborn, New York, Examiner and Photographer of Documents.

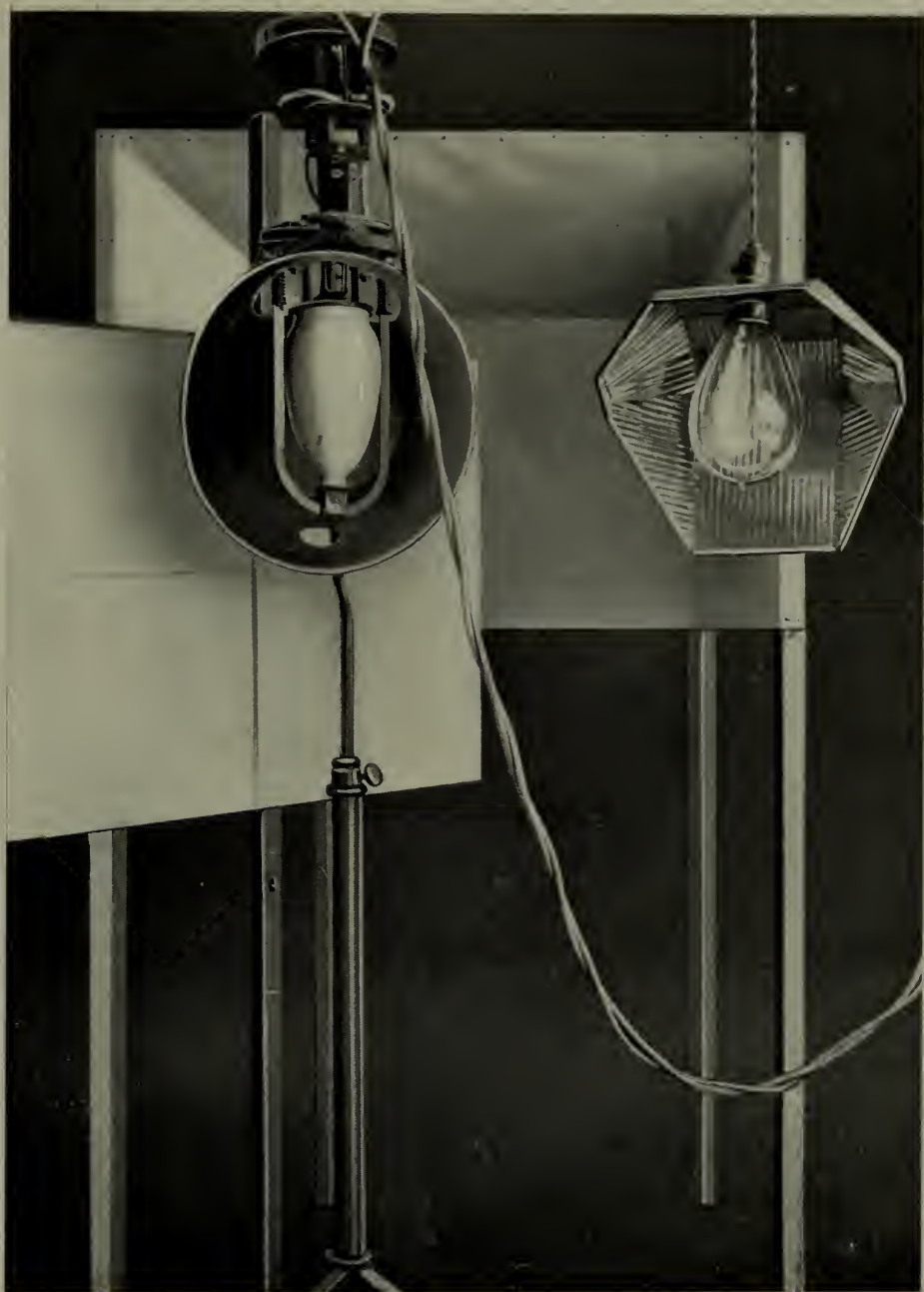


Fig. 3.

Lighting apparatus, showing arc lamp with adjustable stand, adjustable hanging 250 Watt Tungsten lamp with Frink reflector, hood placed around object in using artificial light, white reflector when using daylight.

Illustrating article "Document Photography," by William J. Kinsley.

LENSES.

At least four lenses are needed for all kinds of document work: one or two inches, four or five inches, eight to ten inches, eighteen to twenty inches focus. Most lens makers have lenses especially adapted to document work, for enlarging, color corrected, etc. A greater number of lenses than four would be found useful, but are not absolutely necessary. The Bureau of Standards Department of Commerce and Labor tests and certifies to correctness of lenses.

LIGHTING.

For daylight it is useful to have a white reflector to place on the side of the object away from the source of light. (Fig. 3.)

To show erasures by abrasion, indentation, roughness of paper; or to light seal impressions, a side light admitted through a narrow opening (one-eighth to one-quarter inch) in a paper shade is a successful method.

Artificial lighting permits of making photographs at night and the darkest of days and getting uniform exposures.

Enclosed arc lamps on stand; Tungsten incandescent lamps; Cooper Hewitt mercury lamps and other kinds work well. It has been found by some operators that owing to low actinic value in light produced, exposures made with Tungsten lamps require much longer (several times) time than the volume of light would indicate.

Arc light stands should be adjustable.

The Tungsten light shown in the illustration is a 250 watt and is in a special hanging Frink hood-reflector concentrating the light on the object. (Fig. 3.)

The large hood on four legs shown in group is made of press-board lined on the inside with white cardboard. (Fig. 3.)

Mirrors are sometimes necessary to catch direct sunlight rays and throw them on the object for enlargement.

A beam divider for ground glass measuring; accurate rule (steel preferred) for enlarging to scale; a strong focusing glass (eight to twelve diameters); and accurate paper scale graduated to sixty-fourths of an inch and two inches long



Rudolf Duhrkoop.



CHILD PORTRAIT.

J. EDWARD B. GREENE.



Fig. 4.

1. Photographic exposure record book page.
2. Tint scale for sharp focusing.
3. A measurement scale to photograph with object as a permanent record of size.

(Fig. 4) to place beside object so as to have a permanent record of enlargement; a focusing scale of tints, lines, dots, etc., to enable the operator to secure the greatest definition are all really necessary accessories. (Fig. 4).

Slow plates are best for use for document work. But it is necessary to keep in mind that photo-engraver's or process plates giving strong contrast are not the right kind. What is wanted is the greatest detail and graduation in line construction.



THE EDGE OF THE WOODS.

H. F. PERKINS.

For objects in which there is color, of course, an orthochromatic plate (and a ray filter) should be used.

Glossy paper, "hard" or "soft," as necessary to best reproduce the object, is what will show greatest detail. A "hard" paper will be found proper in most cases. All prints show up best for document work when Ferrotyped. Developing paper gives satisfactory results, but P. O. P. may be used if desired.

The best way to mount prints is to back them with backing paper of the same make. This keeps them smooth and flat, agreeable to the touch, not heavy, and permits of easy and convenient binding.

If all prints are made a uniform size, irrespective of the size of negatives, with tabbed ends, hinged with cloth, perforated, they can be bound in loose-leaf binders of uniform size, and the prints fastened in place with paper fasteners and washers.

Very great enlargements covering much space may be made in sections, hinged with binding tape and folded at hinges.

If a record is kept of each exposure (Fig. 4); the lens certified by the United States Bureau of Standards; and the negative produced in court if desired and the process described, there can be no reasonable objection made to the use of such photographs.

Photographs can be made improperly; but with modern certified lenses in a scientifically constructed camera and the original document in court for comparison, there need be no fear that any injustice will be worked by photographs properly checked up.

Photographs are now rarely excluded. While their admission is discretionary with the court, yet it is seldom that they are not admitted in evidence or at least as illustrations.

When courts, lawyers and laymen understand that document photography as practised by skilled and honest photographers aids in disclosing the facts, there will be even a greater demand for product of the camera as an aid to justice.



HER GREAT-GRANDMAMA.

T. LEE SYMS.

TIMID CHILDREN UNDER THE SKYLIGHT

BY BESSIE M. THOMAS



IMAGINE yourself to be a very small child, led for the first time since you can remember, into an unfamiliar appearing room, where you are pounced upon a mysterious person, who, in his eagerness to be friendly, makes himself offensively familiar on short acquaintance by patting you on the head and by asking your name, your age, whose little boy (or girl) you are, where you got your pretty shoes, and a lot of other questions that you subconsciously consider are none of his business. You are then placed upon a stately piece of furniture under an immense window that you fear may fall on you, until you are distracted by the mysterious person, who noisily places near you a curious object that may be a huge fan, or it may be a new kind of umbrella. Next he runs and hides behind a formidable looking affair that suddenly starts toward you with terrifying speed, recedes a few inches, as if for a new start, and again approaches, with groans and shrieks, for the lack of lubricating oil. As a climax to your misery, this person bobs out from under his blanket, perhaps imitating the howl of a dog, the wail of a cat, or the contortions of a monkey (he means well), and insults you by expecting you to look natural, yes, even pleased. Worst of all, your mother, to whom you have always turned in times of perplexity, has deserted you for a position back of the machine, as if upholding the actions of your tormentor.

Imagine all this if you can, and pity the little victims placed at your mercy. There is a tendency on the part of many people to annoy children with too much attention and confusion. While a certain amount of hilarity may be pleasing to the average young American, to the timid, shrinking, supersensitive subject of tender years, it is repulsive. Again there are those who take delight in teasing children, as if the little tots exist solely for their amusement. It follows, then, that children are



SAN LUIS REY DE FRENCIA.

H. O. ALBRECHT.

on the lookout for such treatment, and stand aloof from a stranger until he has proven himself harmless.

When a child is brought to me to be photographed, I do not speak to it nor give it any attention whatever until it has had time to form an opinion of me. I do not press my acquaintance upon it, but first gain its confidence by chatting for a time in a friendly manner with its mother. In acute cases of timidity the mother is requested to remove her hat, as if to spend the afternoon with me. We engage in commonplace conversation, and the child, left to its own devices, usually becomes interested in some toy left enticingly near. Then the camera is quietly adjusted, and with the mother sitting near, the rest is comparatively easy. Let me emphasize the word "quietly" in connection with making preparation for the exposure. It is my opinion that the less excitement and confusion in the presence of nervous children, the better the results. My aim is to make them feel that nothing unusual is happening, and when friendly relations have been established between us I begin to work for the desired expression.

Often the parents are the cause of a state of nervousness, by previously impressing upon the child the importance of the occasion. Especially is this true if all the available relatives are summoned to accompany them to the studio. If parents could only be educated to co-operate with the photographer—but it is up to some one to write a book on that subject.



PORTRAIT OF A CHILD.

BESSIE L. MEISER.



QUIETUDE.

ROY J. SAWYER.

A NOTE FOR PICTORIALISTS

By E. G. BOON



ANY of the works require examination to show that they are not paintings, but there is apparently no reason for choosing pastel if nothing distinctive of its own particular properties is arrived at. We have emphasized this point before and always turn most readily to those artists who appreciate it, finding, as on former occasions, the true aims."—*Studio*, July 15, 1910.

"If photography is to take place among the arts, it must be by exhibiting the distinction of its own particular properties. There can be no reason for choosing photography as a medium of expression if nothing distinctive of its own particular properties is arrived at.



THE MUSIC LESSON.

ERNEST G. BOON.

Those "oil" and "gum" prints in which the photographic properties have been eliminated, and the photographic original concealed, or destroyed, as merely interesting hybrids, many of them, no doubt, exhibiting a rare refinement of artistic perception, but all of them harmful to the true progress of pictorial photography, misleading as they do the younger workers.

But a healthy reaction has set in against the school of extreme interference, and we find Monsieur Demechy at the opening of his one-man show at the Royal Photographic Society, saying: "It is not without diffidence that I venture to show a series of locally developed prints at a time when pure photography is at a premium amongst many pictorialists."

And the highest praise that Mr. Warburg, chairman of the same meeting, could bestow on the "locally developed" prints was: "some of the controlled prints on these walls are as fine as the finest straight negatives could possibly give us."

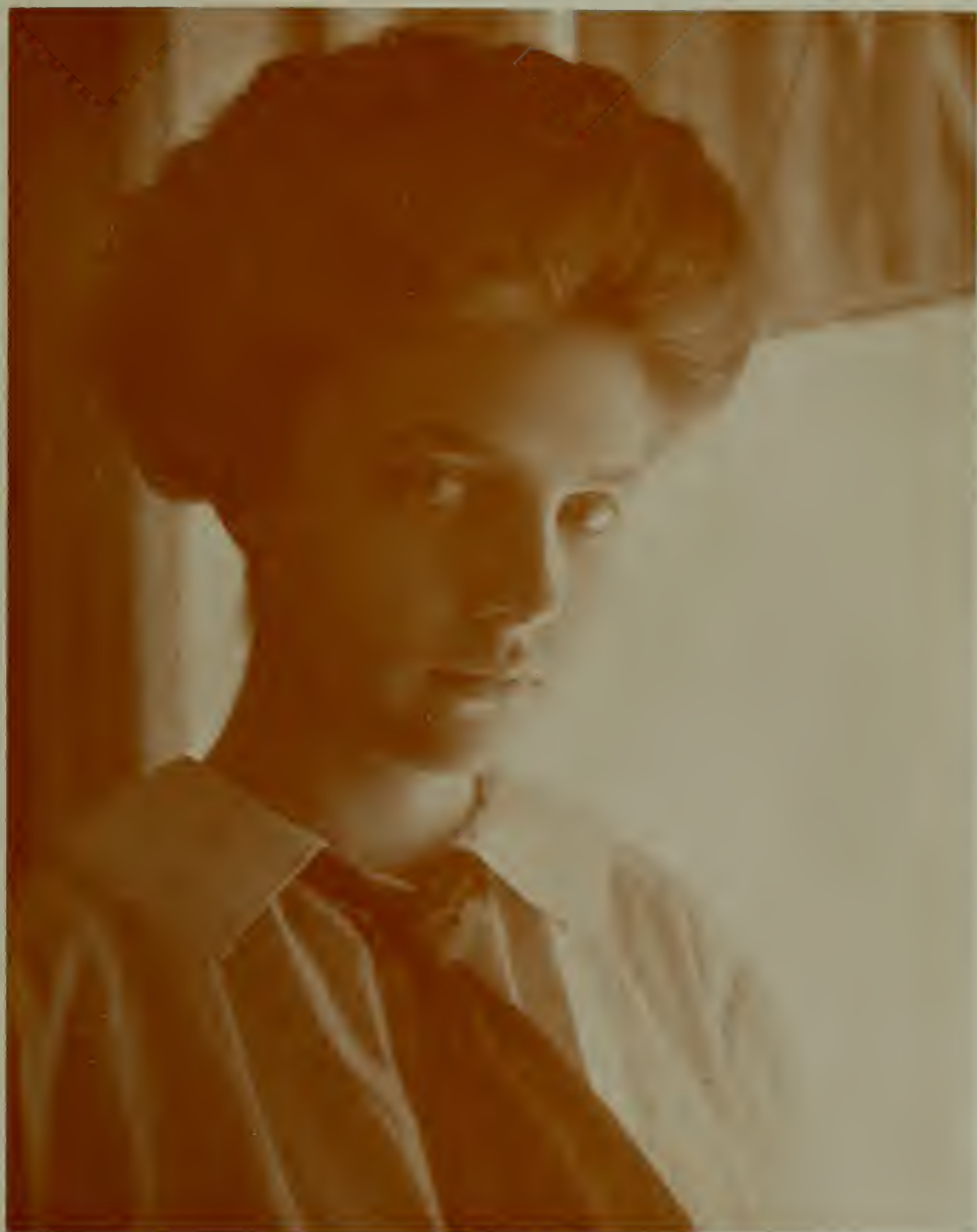
There are two maxims I should like to see in every pictorialist's workroom, viz:

1. A photographic picture that requires close and attentive examination to show that it is a photograph is a failure.
2. The worker in taking up photography must justify himself in his choice by exhibiting in his work the strong inherent qualities of his process.



AUTUMN MIST.

ROY J. SAWYER.



A HOME PORTRAIT.

E. C. Dunning

American Annual Formulary

In the following section we have gathered together a typical collection of Formulæ and Tables, which will assist the photographer in his every-day work. It will be noticed that makers' formulæ are omitted. These can best be obtained by direct application to the makers. The appended formulæ are selected from the working methods of practical photographers.—Editor.

TANK DEVELOPERS FOR NEGATIVES

Adurol (Montgomery). Water, 20 ounces; sulphite soda (anhydrous), 220 grains; carbonate of soda (anhydrous), 220 grains; adurol, 45 grains. For use take 1 ounce of above to 4 ounces water; add 2 drops 10 per cent bromide solution; temperature, 65 degrees; time, 25 minutes.

Glycin (Montgomery). Water (hot), 8 ounces; sulphite of soda (anhydrous), 50 grains; carbonate of soda (anhydrous), 240 grains; glycin, 45 grains. For use take 3 ounces of above to 37 ounces water; temperature, 65 degrees; time, 25 minutes.

Metol Hydro (Frew). Water, 12 ounces; metol, $7\frac{1}{2}$ grains; sulphite of soda (anhydrous), 274 grains; hydrochinone, 30 grains; carbonate of soda (anhydrous), 150 grains; bromide of potassium, 2 grains. For use to each ounce of above add 4 ounces of water; temperature, 65 degrees; time, 12 minutes.

Ortol (Smith). Water, 60 ounces; metabisulphite of Potassium, 15 grains; sulphite of soda (anhydrous), 100 grains; carbonate of soda (anhydrous), 100 grains; ortol, 30 grains; temperature, 65 degrees; time, 20 minutes

Rodinal (Agfa). Water, 60 ounces; rodinal, 1 ounce; temperature, 65 degrees; time, 25 minutes.

TRAY DEVELOPERS FOR NEGATIVES

Adurol. No. 1.—Water, 10 ounces; sodium sulphite, $1\frac{3}{4}$ ounces; adurol, 85 grains.

No. 2.—Water, 10 ounces; potassium carbonate, $1\frac{1}{4}$ grains. For average outdoor exposures use equal quantities Nos. 1 and 2; for fully timed exposures take 1 ounce each of No. 1, No. 2, and water.

Amidol. A concentrated developer.—Water, 13 ounces; sodium sulphite (crystals), $2\frac{1}{2}$ ounces; when dissolved add amidol, $\frac{1}{4}$ ounce. The solution keeps fairly well in bottles completely full and well corked. For use take 1 ounce of the concentrated solution and dilute with 3 or 4 ounces of water.

Edinol-Hydro. for Panchromatic Plates.—Water, 30 ounces; edinol, 120 grains; hydrochinone, 120 grains; sodium sulphite (dry), 768 grains; carbonate potassium, 1344 grains; 10 per cent. bromide potassium solution, 1 dram; 10 per cent. oxalic acid solution, 1 dram. For tank use 1 ounce of above to 15 ounces water; temperature, 65 degrees; time, 15 minutes. For tray use 1 ounce above to 4 ounces water.

Hydroquinone (Shoemaker). No. 1.—Hydroquinone, 123 grains; sodium sulphite (crystals), 1,000 grains; bromide of potassium, 3 grains; water, 16 ounces. Dissolve the hydroquinone in 6 ounces of the water; in the remaining 10 ounces dissolve the sulphite and bromide; combine the two solutions in one bottle and label "stock solution."

No. 2.—Water, 10 ounces; caustic soda, 180 grains. For correct exposure use 3 ounces of No. 1, $\frac{1}{2}$ ounce of No. 2, and add 1 ounce of water. For over-exposure dilute this solution with 2 ounces of water.

Metol (Wenzel). No. 1.—Metol, 30 grains; potassium metabisulphite, 10 grains; potassium bromide, 5 grains; water, 5 ounces.

No. 2.—Sodium sulphite, 240 grains; sodium carbonate, 240 grains; water, 5 ounces. 1 and 2 combined form a one-solution developer for normal exposures. For use as a two-solution developer, for normal exposures take of No. 1, 1 part; No. 2, 1 part; and water, 1 to 2 parts, according to the assumed degree of under-exposure. For over-exposures take of No. 1, 2 parts; No. 2, 1 part; and add 10 per cent. solution of potassium bromide as required.

Metol-Hydroquinone for Orthochromatic Plates.—Water, 20 ounces; metol, 14 grains; potassium metabisulphite, 18 grains; hydroquinone, 56 grains; sodium sulphite, 1 ounce; sodium carbonate, $1\frac{3}{4}$ ounces. Use 1 drop of a 10 per cent. potassium bromide solution to each ounce only if necessary.

Ortol (Pentlarge). No. 1.—Water, 1 ounce; metabisulphite of potash, 4 grains; ortol, 8 grains.

No. 2.—Water, 1 ounce; sodium sulphite, 48 grains; carbonate of potassium, 16 grains; carbonate of soda, 32 grains. Add a drop or two of a 10 per cent. solution of bromide of potassium. For correct exposure mix No. 1 and No. 2 and dilute with an equal bulk of water. For under or over-exposure, add less or more water than equal bulk of Nos. 1 and 2 combined.

Pyro, Dry (Fairman). A developer for those who develop at irregular intervals.

1.—Dissolve 1 ounce of sodium sulphite in 3 ounces of distilled water heated to boiling point, and when the salt is dissolved add water to make up solution to 4 ounces. Keep in a well-corked 4-ounce bottle, labeled sodium sulphite 1:4.

2.—Dissolve 1 ounce of sodium carbonate in 3 ounces of hot water, make up to 4 ounces of solution and label carbonate of soda 1:4.

3.—Dissolve 1 ounce of potassium bromide in 9 ounces of cold water, add water to make up the solution to 10 ounces and label potassium bromide 1:10. Keep on hand an ounce of dry pyro. When ready to develop, take a 6-ounce graduate with measures marked in drams and ounces. Pour into this $\frac{1}{2}$ ounce of the sulphite solution; dissolve in it 5 grains of pyro; add 3 drams of carbonate solution and 5 drops of potassium bromide 1:10. Add water to make the developing solution up to 5 ounces in winter time, or 6 ounces in summer time.

Pyro Soda (Mellen). No. 1.—Water, 20 ounces; sodium sulphite (crystals), 4 ounces; carbonate of soda, 2 ounces. Dissolve the sulphite first and then add the carbonate.

No. 2.—Water, 6 ounces; pyro, 1 ounce. For correct exposures take 1 dram of No. 2; 1 ounce of No. 1, and add 2 ounces of water. For snapshots, or plates thought to be under-exposed, use 1 dram of No. 2; $1\frac{1}{2}$ drams of No. 1, and 6 ounces of water. For over-exposure take 2 drams of No. 2, 1 ounce of No. 1 and 6 ounces of water. Or, instead of the 2 drams of No. 2 in this solution use 1 dram of No. 2 and 10 drops of a 10 per cent. solution of potassium bromide.

Rodinal. A single solution developer.—For normal exposures dilute 1 part of rodinal with 20 parts of water; for over-exposure rodinal, 1 part; water, 10 to 20 parts; and a liberal dose of a 10 per cent. solution of potassium bromide; under-exposure, rodinal, 1 part; water, 20 to 40 parts. For uncertain exposures begin with rodinal, 1 part; water, 25, and when the character of the exposure is indicated transfer the plate to rodinal solution of the strength required.

FIXING BATHS AND HARDENERS

Acid Fixing Bath (Carbutt).—Sulphuric acid, 1 dram; sodium hyposulphite, 16 ounces; sodium sulphite, 2 ounces; chrome alum, 1 ounce; warm water, 64 ounces. To prepare the bath, dissolve the hypo in 48 ounces of water; the sodium sulphite in 6 ounces; mix the sulphuric acid with 2 ounces of the water and pour slowly into the sulphite solution, and then add to the hypo solution. Dissolve the chrome alum in 8 ounces of water; add to the bulk of the solution and the bath is ready for use.

Plain Fixing Bath.—Dissolve 1 pound of sodium hyposulphite in 2 quarts of water or 4 ounces of the hypo in a pint of water, according to the bulk of the solution required.

Hardener for Fixing Bath (Beach.) Water, 40 ounces; sulphite soda (crystals), 6 ounces; powdered alum, 16 ounces; acetic acid, 40 ounces. Add in the order given and shake well until dissolved. Of the above add 16 ounces to each gallon of hyposulphite of soda solution, testing 70 to 80 degrees.

Hardening Negatives.—Immerse them for a few minutes in formalin, 1 ounce; water, 30 ounces.

INTENSIFICATION

Mercuric Chloride Process. No. 1.—Mercuric chloride, 200 grains; bromide of potassium, 120 grains; water, 6½ ounces.

No. 2.—Sodium sulphite, 1 ounce; water, 4 ounces. The well-washed negative, free from hypo, must be thoroughly bleached in No. 1; well washed; and then blackened in No. 2. After blackening it is well washed again.

REDUCTION

Ammonium Persulphate.—Prepare a solution in the following proportions: Ammonium persulphate, 15 grains; water, 1 ounce. The solution should be made just before use. The negative must be perfectly free from hypo or it will be stained by the persulphate. When the desired reduction has been reached, transfer the negative without washing to a 10 per cent. solution of anhydrous sodium sulphite. Wash finally for 15 or 20 minutes.

Farmer's Reducer.—Dissolve 1 ounce of potassium ferricyanide in 9 ounces of water and make up to 10 ounces, forming a 10 per cent. solution. Label this poison. Thoroughly wet the negative to be reduced. Take enough fresh plain hypo fixing bath for the purpose, and add to it enough of the ferricyanide solution to make it a light straw color. The negative to be reduced is immersed in this solution, when it will be seen to lose density. Rock the tray to insure evenness of action. This reducer can also be used for local treatment.

CLEARING STAINED NEGATIVES

Acid Alum.—Dissolve ⅛ ounce of pulverized alum in 20 ounces of water and add 1 dram of sulphuric acid. Immerse the stained plate in this solution for a few minutes; remove plate, wash, and then set in the rack to dry.

PRINTING PROCESSES

Blue Prints.

Blue Printing Sensitizing Formulae (Brown). A.—Dissolve 110 grains ferric ammonium citrate (green) in 1 ounce of water.

B.—Dissolve 40 grains of potassium ferricyanide in 1 ounce of water. These two solutions are made up separately in any desired quantity with the proportions given. They are then mixed together and kept in a stoneware bottle, but the single solution should always be filtered before use. The mixture will retain its good qualities for months if kept from the light.

(*Millen*).—Potassium ferricyanide, 1 ounce; ammonia-citrate of iron, $1\frac{1}{2}$ ounces; distilled water, 10 ounces. Mix thoroughly and filter. The solution should have a deep wine color and dry on the paper a lemon-yellow. If the solution is green and has a precipitate, the ammonio-citrate is old and spoiled, or you have been given plain citrate of iron. The mixture should be kept from the light by placing the bottle in a light-tight tin, or similar container.

(*Nicol*). A.—Ammonio-citrate of iron, 3 ounces; water, 4 ounces.

B.—Potassium ferricyanide, $2\frac{1}{4}$ ounces; water, 4 ounces. Just before using mix together one part each of A and B and add two parts of water.

Bromide Paper.

Bromide Paper Developers: Hydroquinone-metol. No. 1.—Water, 10 ounces; hydroquinone, 52 grains; potassium metabisulphite, 18 grains; sodium sulphite, 5 drams; sodium carbonate, $1\frac{1}{4}$ ounces.

No. 2.—Water, 10 ounces; metol, 30 grains; sodium carbonate, 5 drams; sodium sulphite, 5 drams. One or two drops of a potassium bromide 10 per cent. solution added to 1 ounce of the mixed developer will increase contrast and keep the whites pure. Equal parts of 1 and 2 give excellent prints from a normal negative; one part of 1 and two of 2 give gray prints with maximum half-tone and gradation; two parts of 1 and one of 2 give vigorous prints from soft delicate negatives.

Amidol for rich blacks (freshly prepared). Distilled (or boiled) water, 4 ounces; sodium sulphite (crystals), 90 drams; amidol, 10 to 15 grains. Add a drop of 10 per cent. bromide solution to each ounce of developer.

Bromide Prints: Toning Formulae for Sepia Tones: Hypo Alum.—Hyposulphite of soda, 5 ounces; ground alum, 1 ounce; boiling water, 70 ounces. Dissolve the hypo in the water, and then add the alum slowly. A milk-white solution results which should be decanted when clear. It is not used until cold (about 60 deg. Fahr.).

Sulphide of Sodium.—The fixed and washed print is treated with one of the following solutions: (1) Potassium ferricyanide, 10 grains; potassium bromide, 10 grains; water, 1 ounce; or (2) potassium ferricyanide, 20 grains; sodium chloride (common salt), 30 grains; water, 1 ounce. The image will be bleached by either of these solutions in a few minutes, the whitish appearance of the deposit being caused by its change into a salt of silver. After 5 minutes in running water apply the sulphuretting solution: Dissolve 3 ounces of sodium monosulphide in 15 ounces of water; boil the solution for about 10 minutes, filter off the black precipitate formed, and when cooled make up to 25 ounces with water. To tone, take 12 per cent. stock sodium sulphide solution, 1 ounce; water, 12 to 20 ounces.

Red Tones: Copper.—Dissolve 100 grains of ammonium carbonate in 2 ounces of water, and in this solution dissolve 10 grains of sulphate of copper. Then add 20 grains of potassium ferricyanide. A clear, dark green solution results which gives a red-chalk tone in about three minutes. Tone until the deepest shadow is converted, and then wash the print for ten minutes.

Green Tones: Vanadium.—Bleach print in the following: Potassium ferricyanide, 10 grains; ammonium carbonate, 100 grains; water, 1 ounce. Wash well and apply: Ferric chloride, 2 grains; vanadium chloride, 2 grains; ammonium chloride, 4 grains; hydrochloric acid, 5 minims; water, 1 ounce.

Blue Tones: Iron.—Bleach print in: Potassium ferricyanide, 10 grains; ammonium carbonate, 100 grains; water, 1 ounce; then tone in ferric chloride, 5 grains; hydrochloric acid, 5 minims; water, 1 ounce.

Carbon Tissue.

Carbon Tissue, Sensitizer for (Bennett).—Potassium bichromate, 4 drams; citric acid, 1 dram; strong ammonia water, about 3 drams; water, 25 ounces; dissolve the bichromate and citric acid in hot water, and add sufficient ammonia to change the orange color of the solution to lemon-yellow. Sensitize for 90 seconds; reducing the water softens the gradation in the print; increasing it to 30 ounces gives more vigor.

Carbon Lantern Slides. Prepare the glass by coating with the following preparation: 180 grains of Nelson's Gelatine No. 1, in 20 ounces water. Add 10 grains bichromate of potash. Dry and allow the plate to be exposed to light for a couple of days to make the coating thoroughly insoluble. Sensitizer for tissue: 1 per cent. to $1\frac{1}{4}$ per cent. solution of bichromate of potash. Immerse two minutes. Print deeply; expose twice as long as ordinary paper print. Develop in hot water as usual.

Gum Bichromate

Gum Bichromate (Caspar Millar). A.—Gum arabic, $1\frac{1}{4}$ ounces; water, $3\frac{1}{2}$ ounces; salicylic acid, 4 grains.

B.—Chrome alum, 45 grains; water, $3\frac{1}{2}$ ounces. Grind A and B with water and pigment, brush over paper, dry and store.

Suggested formula.—A, 2 ounces; B, $1\frac{1}{2}$ drams; carbon black, 10 grains; sensitize for 2 minutes in 5 per cent. bichromate solution.

Kallitype.

Kallitype Sensitizer for Black Tones (Thomson).—Distilled water, 1 ounce; ferric oxalate (Merck's or Mallinckrodt's), 15 grains; citrate of iron and ammonia (brown scales), 25 grains; chloride of copper, 8 grains; oxalate of potassium, 35 grains; oxalic acid, 15 grains; silver nitrate, 15 grains; gum arabic, 10 grains.

Developer.—Distilled water, 1 ounce; silver nitrate, 40 grains; citric acid, 10 grains; oxalic acid, 10 grains.

Platinum Papers.

Platinum: Sensitizing Gold Bath and Sepia Papers. A.—Chloroplatinite of potassium, 15 grains; distilled water, 90 minims.

B.—Ferric oxalate, 21 grains; oxalic acid, 2 grains; distilled water, 183 minims. For cold bath paper, mix A and B, and add 15 minims of water. For sepia paper mix A and B and add 15 minims of a 5 per cent. solution of mercuric chloride. The addition of a few grains of potassium chlorate to any of the above gives increased contrast in the print. From 140 to 170 minims of solution are sufficient to coat a sheet of paper 20 x 26 inches.

Platinum Prints: to Intensify. A.—Sodium formate, 45 grains; water, 1 ounce.

B.—Platinum perchloride, 10 grains; water, 1 ounce.

C.—For use, take 15 minims each of A and B to 2 ounces of water. Immerse prints until sufficiently intensified, then remove and wash.

Gold Toning.—For blue-black tones, for slight strengthening, and for converting rusty black into pure black. Soak print in warm water, lay on warm glass, brush over glycerine and blot off. Pour on few minims of solution of gold chloride (1 grain per dram), and rapidly brush in all directions. When toned, rinse, and sponge back and front with: Metol, 50 grains; sodium sulphite, 1 ounce; potassium carbonate, $\frac{1}{2}$ ounce; water, 20 ounces. Tone in daylight. Do not tone sepias or old prints in this solution.

Platinum Prints: to Distinguish from Bromide.—Soak the print in saturated solution of mercuric chloride: a platinum print will not change; a bromide print will bleach.

Salted Papers.

Salted Paper Prints; sensitize with the following:

Silver	480 gr. Troy.
Water	11 ounces.

Dissolve and pour off 2 ounces, and to the 9 ounces left add strong aqua ammonia to form a precipitate and redissolve the precipitate, then add the remaining 2 ounces which will form another precipitate, to this add 9 drops of nitric acid. C. P. Apply this to the paper with a tuft of cotton.

Any good Toning Bath will give good results, such as:

Chloride Aluminum	80 grains.
Bi-Carbonate Soda	360 “
Water	48 ounces.

When mixed this will form a flocky hydrate which will settle to the bottom. It can be strained through clean washed muslin. To prepare a small bath for toning, take 12 ounces of the stock solution and add sufficient gold to tone in 8 to 10 minutes. The gold solution must be neutralized with bi-carbonate soda before adding to the above bath. When the prints reach the desired tone throw them into a bath of salt water, made of water, 1 gallon; table salt, 1 ounce.

MISCELLANEA

Adhesive for Labels.—Soak 1 part of the best glue in water until thoroughly swollen, add a little sugar candy, 1 part of gum arabic and 6 parts of water. Boil with constant stirring over a spirit lamp until the whole gets thin. Coat sheets of paper with it; let dry and cut up into convenient sizes.

Backing Mixture.—Dissolve a 4-ounce stick of licorice in 8 ounces of water with the aid of gentle heat. When dissolved rub into the mixture 1 ounce of burnt sienna in powder, using the back of a spoon for this purpose. When cold, bottle for use.

Blackening Brass.—Make two solutions: Copper nitrate, 200 grains; water, 1 ounce. Silver nitrate, 200 grains; water, 1 ounce. Mix the solutions; clean the article well; dip it in the solution for a moment; withdraw it; dry it; and heat it strongly.

Black, Dead, for Wood.—Shellac, 40 parts; borax, 20 parts; glycerine, 20 parts; water, 500 parts. When dissolved, add 50 parts aniline black.

Cleaning Greasy Bottles. Wash with benzine, or permanganate of potassium, to which has been added some hydrochloric acid.

Bottles that have contained resinous substances, wash with potash or soda and rinse with alcohol. Bottles that have contained essences, wash with sulphuric acid, then with water.

Film: to Remove from Glass: Make two solutions. A.—Sodium fluoride, 6 grains; water, 4 ounces.

B.—Sulphuric acid, 6 drops; water, 1 ounce. Place the negative in solution A for two minutes and then place directly in solution B. After another two minutes lift the film with the finger from one corner of the plate. It will soon leave the glass.

Ground Glass Varnish: Sandarac, 90 grains; mastic, 20 grains; ether, 2 ounces. Dissolve the resins in the ether and add benzole $\frac{1}{2}$ to $1\frac{1}{2}$ ounces.

Substitutes for Ground Glass. 1.—Paraffin wax makes an excellent substitute for ground glass if the latter should get broken. Iron the paper onto a sheet of plain glass. It is more transparent than the focusing screen and the image will appear clearer; hence, in exposing allowance must be made for the difference in illumination.

2.—Resin dissolved in wood alcohol and blown over the glass; this must not be scratched; it gives a very fine-grained ground glass effect.

3.—White wax, 120 grains; ether, 1 ounce.

Lens: to Clean.—The lens should always be kept free from dust or other impurities. To clean it, spread upon a table a clean sheet of paper; take the lens apart, and with a camel-hair brush dust each of the combinations on both sides. If the surfaces of the lenses are very dirty and have lost their polish, make up the following: Nitric acid, 3 drops; alcohol, 1 ounce; distilled water, 2 ounces. Dip a tuft of filtering cotton in this solution, rub each side of the lens, then polish with an absolutely clean chamois. Clean the lens tube before replacing the lenses, each of which should be finally dusted with a camel-hair brush.

Poisons and Antidotes.—Administer the antidote as soon as possible. If a strong acid or alkali, or cyanide of potassium, has been swallowed, lukewarm water in large quantities should be swallowed at once. Where strong acids or alkalies have not been swallowed, rid the stomach of the poison by vomiting; for this purpose take 25 grains of zinc sulphate in warm water.

Polished surfaces: to Photograph.—Smear the surface with soft putty so as to deaden the reflections. Photograph the article against a black background, and stop off all reflections, allowing the light to come from one direction only. To photograph hollow cut glassware fill with ink or aniline black water dye. Before photographing machinery deaden the bright parts with putty.

Retouching Mediums. (1.)—Pure alcohol, 2 parts; sandarac, 1 part; benzine, 4 parts; acetone, 4 parts.

(2.)—A simpler medium is made by dissolving a little resin in turpentine.

Retouching Medium.—Gum dammar, 10 grains, and add it to oil of turpentine, 1 ounce; Canada balsam (about) 5 grains. Shake occasionally until all is dissolved.

Safe Light for Panchromatic Plates.—Take old dry plates and coat with the following: Water, 10 ounces; tartrazine, 75 grains; patent blue A, 75 grains; naphthol green, 75 grains; sulphuric acid, 30 minims. Stain the plates as deeply as possible. Use 2 plates.

Stained Fingers.—Stains arising from developing generally dis-

appear if the fingers, before they have dried, be rubbed with a crystal of citric acid.

Stains: to Remove from the Hands.—Developer stains: solution of citric or oxalic acid. Silver nitrate stains: Water, 4 ounces; chloride of lime, 350 grains; sulphate of soda, 1 ounce. Apply with a brush.

Tarnished Daguerreotypes, to Restore.—Remove the silvered plate from the case and place it, image uppermost, under a box lid or other protector from dust, etc. Put a small piece of potassium cyanide into a graduate and pour over it one or two ounces of water. Hold the daguerreotype by the corner with a pair of pliers, rinse it in clear running water, then pour over it the weak cyanide solution (a 3 per cent. solution is usually employed), and return it to the graduate. Repeat this operation several times until the discoloration quite disappears. Wash well in running water, and then, before the surplus water has time to collect in tears upon the image, begin to dry the plate gradually over a spirit lamp, holding the plate in an inclined position so that it will dry from the uppermost corner. The secret of success is in the use of pure water for the final washings and the drying of the image without check or the formation of tears.

Test for Hypo: Potassium permanganate, 2 grains; potassium carbonate, 20 grains; distilled water, 40 ounces. Soak the plate or print to be treated in water for one hour, then remove and add to the water a few drops of the above solution, which will turn a greenish yellow or brown if the water is not free from hypo.

Varnish for Negatives and Lantern Slides.—Dissolve 1 part of gum sandarac in 25 parts of benzole. Apply cold.

Protective Varnish for Labels.—Use waterproof ink when writing on the paper. Dry, and coat with the following varnish: Cut into fine shreds an old celluloid negative film from which all traces of gelatine have been removed. Put the shreds in a small bottle; half fill with amyl acetate and then add wood alcohol or methylated spirit, which will dissolve the celluloid.

Waxing Solution: Spirits of turpentine, 6 ounces; Japan drier (white), $4\frac{1}{2}$ ounces. Sprinkle the fluid on the print and rub in with cheese cloth.

THE ELEMENTS: THEIR NAMES, SYMBOLS, AND ATOMIC WEIGHTS. OXYGEN STANDARD.

Compiled by HENRY F. RAESS.

<i>Aluminum</i> ....Al	27.1	HYDROGEN .. H	1.008	Rubidium ....Rb	85.4
<i>Antimony</i> ....Sb	120.2	<i>Indium</i> .....In	114.	Ruthenium ..Ru	101.7
<i>Argon</i> .....A	39.9	Iodine .....I	126.85	<i>Samarium</i> ....Sm	150
ARSENIC ....As	75.0	IRIDIUM .....Ir	193.0	<i>Scandium</i> ....Sc	44.1
Barium .....Ba	137.4	<i>Iron</i> .....Fe	55.9	Selenium ....Se	79.2
Bismuth .....Bi	208.5	Krypton .....Kr	81.8	Silicon .....Si	28.4
<i>Boron</i> .....B	11	<i>Lanthanum</i> .....La	138.9	SILVER ....Ag	107.93
BROMINE ...Br	79.96	<i>Lead</i> .....Pb	206.9	SODIUM ....Na	23.05
Cadmium .....Cd	112.4	LITHIUM .....Li	7.03	Strontium ....Sr	87.6
<i>Caesium</i> .....Cs	132.9	Magnesium .....Mg	24.36	SULPHUR ..S	32.06
Calcium .....Ca	40.1	MANGANESE ..Mn	55.0	<i>Tantalum</i> ....Ta	183.
CARBON .....C	12.00	MERCURY .....Hg	200.0	Tellurium ....Te	127.6
Cerium .....Ce	140.25	MOLYBDENUM..Mo	96.0	<i>Terbium</i> .....Tb	160
Chlorine .....Cl	35.45	Neodymium .....Nd	143.6	Thallium ....Tl	204.1
<i>Chromium</i> ....Cr	52.1	<i>Neon</i> .....Ne	20	Thorium ....Th	232.5
COBALT ....Co	59.0	Nickel .....Ni	58.7	<i>Thulium</i> .....Tm	171
<i>Columbium</i> ...Cb	94	Nitrogen .....N	14.04	TIN .....Sn	119.0
Copper .....Cu	63.6	<i>Osmium</i> .....Os	191	<i>Titanium</i> ....Ti	48.1
Erbium .....Er	166	OXYGEN .....O	16	TUNGSTEN ..W	184.0
<i>Fluorine</i> .....F	19	Palladium .....Pd	106.5	Uranium .....U	238.5
<i>Gadolinium</i> ...Gd	156	PHOSPHORUS..P	31.0	Vanadium. ...V	51.2
Gallium .....Ga	70	Platinum .....Pt	194.8	<i>Xenon</i> .....Xe	128
Germanium ...Ge	72.5	Potassium .....K	39.15	YTTERBIUM Yb	173.0
<i>Glucinum</i> .....Gl	9.1	Praseodymium ...Pr	140.5	YTTRIUM ..Yt	89.0
Gold .....Au	197.2	<i>Radium</i> .....Rd	225	Zinc .....Zn	65.4
<i>Helium</i> .....He	4	RHODIUM .....Rh	103.0	Zirconium ...Zr	90.6

TABLE OF COMPARATIVE PLATE SPEED
NUMBERS.

H & D	Watkins P No	Wynne F No.	H & D	Watkins P No.	Wynne F No.
10	15	24	220	323	114
20	30	28	240	352	120
40	60	49	260	382	124
80	120	69	280	412	129
100	147	77	300	441	134
120	176	84	320	470	138
140	206	91	340	500	142
160	235	103	380	558	150
200	294	109	400	588	154

The above Watkins and Wynne numbers are equivalent to the H and D, only when the latter is determined in accordance with the directions of Hurter and Driffeld, that is with pyro-soda developer and using the straight portion only of the density curve.

To convert H and D into Watkins: Multiply H and D by 50 and divide by 34. For all practical purposes the Watkins P number is $1\frac{1}{2}$ times H and D.

To convert Watkins into Wynne F Nos.: Extract the square root and multiply by 6.4.

The above methods have been approved by the Watkins Meter Company and the Infallible Exposure Meter Company.

TABLES OF DISTANCES AT AND BEYOND WHICH ALL OBJECTS ARE IN FOCUS WHEN SHARP FOCUS IS SECURED ON INFINITY

Focal length of Lens in inches	Ratio marked on Stops													
	<i>f</i> /4	<i>f</i> /5.6	<i>f</i> /6	<i>f</i> /7	<i>f</i> /8	<i>f</i> /10	<i>f</i> /11	<i>f</i> /15	<i>f</i> /16	<i>f</i> /20	<i>f</i> /22	<i>f</i> /32	<i>f</i> /44	<i>f</i> /6
	Number of feet after which all is in focus													
4	33	24	22	19	17	13	12	9	8	7	6	4	3	2
4¼	38	27	25	21	19	15	14	10	10	7	7	5	3½	2½
4½	42	30	28	24	21	17	15	11	11	8½	7½	5½	4	3
4¾	47	34	31	27	24	19	17	12	12	9½	8½	6	5	3
5	52	36	35	30	26	21	19	14	13	10½	9½	6½	5½	3½
5¼	57	40	38	33	28	23	21	15	14	11½	10½	7	5½	3½
5½	63	45	43	36	31	25	23	17	15	12½	11½	7½	6	4
5¾	68	50	46	38	34	27	25	18	17	13½	13	8½	6½	4
6	75	54	50	42	38	30	28	20	19	15	14	9	7	4½
6¼	81	58	54	46	40	32	29	22	20	16	15	10	7½	5
6½	87	62	58	50	44	35	32	23	22	17½	16	11	8	5½
6¾	94	67	63	54	47	38	34	25	24	19	17	12	8½	6
7	101	72	68	58	51	40	37	27	25	20	18	12½	9	6
7¼	109	78	73	62	54	44	39	29	27	22	20	13½	10	6½
7½	117	83	78	64	58	47	42	31	29	24	21	14½	10½	7
7¾	124	90	83	71	62	50	45	33	31	25	22	15½	11	7½
8	132	96	88	76	68	52	48	36	32	28	24	16	12	8
8¼	141	100	94	80	71	56	51	37	35	29	25	17½	12½	8½
8½	150	104	100	84	76	60	56	40	38	30	27	19	13½	9
8¾	156	111	104	89	78	63	57	42	39	32	29	20	14	10
9	168	120	112	96	84	67	61	45	42	34	31	21	15	10½
9¼	180	127	116	101	90	71	65	47	45	35	32	22	16	11
9½	190	133	125	107	95	75	68	50	47	37	34	24	17	12
9¾	197	141	131	113	99	79	72	52	50	39	36	25	18	12½
10	208	148	140	120	104	83	75	55	52	42	38	26	19	13

If sharp focus is secured on any of the distances shown, then, with the stop indicated, all objects are in focus from half the distance focused on up to infinity.

LENGTH OF STUDIO REQUIRED FOR LENSES OF DIFFERENT FOCAL LENGTHS. FROM 6 TO 8 FEET IS ALLOWED FOR THE CAMERA AND OPERATOR

From "Photographic Lenses" by BECK and ANDREWS

Focus of Lens	Size	Kind of Portrait	Length of Studio	Dist. of Lens from Object
Inches			In Feet	In Feet
6	Carte de Visite 3¼ x 4¼.....	Full Length..	18 to 20	11 to 12
7½	Carte de Visite.....	Full Length..	22 to 25	14 to 15
8½	Carte de Visite.....	Full Length..	24 to 28	17 to 19
		Bust.....	10 to 15	5
9½	Cabinet and smaller groups....	Full Length..	20 to 23	12 to 13
		Bust.....	12 to 17	7
11	Cabinet and 5 x 7 groups.....	Full Length..	25 to 30	17 to 18
		Bust.....	13 to 20	8
14½	Cabinets, panels and 6½ x 8½ groups.....	Full Length..	32 to 40	23 to 24
		Bust.....	14 to 20	7
19	10 x 12 portraits or groups.....	Full Length..	20 to 25	13
		Bust.....	14 to 20	7
24	16 x 20 portraits or groups.....	Full Length..	25 to 30	14
		Bust.....	14 to 20	8

TABLE FOR CALCULATING DISTANCES IN ENLARGING OR REDUCING

From The British Journal Photographic Almanac.

FOCUS OF LENS	TIMES OF ENLARGEMENT AND REDUCTION.							
Inches	1 Inch	2 Inches	3 Inches	4 Inches	5 Inches	6 Inches	7 Inches	8 Inches
2.....	4 4	6 3	8 $2\frac{2}{3}$	10 $2\frac{1}{2}$	12 $2\frac{2}{5}$	14 $2\frac{1}{3}$	16 $2\frac{2}{7}$	18 $2\frac{1}{4}$
$2\frac{1}{2}$	5 5	$7\frac{1}{2}$ $3\frac{3}{4}$	10 $3\frac{1}{3}$	$12\frac{1}{2}$ $3\frac{1}{8}$	15 3	$17\frac{1}{2}$ $2\frac{9}{10}$	20 $2\frac{6}{7}$	$22\frac{1}{2}$ $2\frac{3}{8}$
3.....	6 6	9 $4\frac{1}{2}$	12 4	15 $3\frac{3}{4}$	18 $3\frac{3}{5}$	21 $3\frac{1}{2}$	24 $3\frac{3}{7}$	27 $3\frac{3}{8}$
$3\frac{1}{2}$	7 7	$10\frac{1}{2}$ $5\frac{1}{4}$	14 $4\frac{2}{3}$	$17\frac{1}{2}$ $4\frac{3}{4}$	21 $4\frac{1}{5}$	$24\frac{1}{2}$ $4\frac{1}{2}$	28 4	$31\frac{1}{2}$ $3\frac{9}{10}$
4.....	8 8	12 6	16 $5\frac{1}{3}$	20 5	24 $4\frac{4}{5}$	28 $4\frac{2}{3}$	32 $4\frac{4}{7}$	36 $4\frac{1}{2}$
$4\frac{1}{2}$	9 9	$13\frac{1}{2}$ $6\frac{3}{4}$	18 6	$22\frac{1}{2}$ $5\frac{3}{5}$	27 $5\frac{2}{5}$	$31\frac{1}{2}$ $5\frac{1}{4}$	36 $5\frac{1}{7}$	$40\frac{1}{2}$ $5\frac{1}{6}$
5.....	10 10	15 $7\frac{1}{2}$	20 $6\frac{2}{3}$	25 $6\frac{1}{4}$	30 6	35 $5\frac{5}{6}$	40 $5\frac{5}{7}$	45 $5\frac{5}{8}$
$5\frac{1}{2}$	11 11	$16\frac{1}{2}$ $8\frac{1}{4}$	22 $7\frac{1}{3}$	$27\frac{1}{2}$ $6\frac{4}{5}$	33 $6\frac{1}{2}$	$38\frac{1}{2}$ $6\frac{5}{12}$	44 $6\frac{2}{7}$	$49\frac{1}{2}$ $6\frac{3}{8}$
6.....	12 12	18 9	24 8	30 $7\frac{1}{2}$	36 $7\frac{1}{5}$	42 7	48 $6\frac{6}{7}$	54 $6\frac{3}{4}$
7.....	14 14	21 $10\frac{1}{2}$	28 $9\frac{1}{3}$	35 $8\frac{3}{4}$	42 $8\frac{2}{5}$	49 $8\frac{1}{6}$	56 8	63 $7\frac{7}{8}$
8.....	16 16	24 12	32 $10\frac{2}{3}$	40 10	48 $9\frac{3}{5}$	56 $9\frac{1}{3}$	64 $9\frac{1}{7}$	72 9
9.....	18 18	27 $13\frac{1}{2}$	36 12	45 $11\frac{1}{4}$	54 $10\frac{4}{5}$	63 $10\frac{1}{2}$	72 $10\frac{2}{7}$	81 $10\frac{1}{8}$

The object of this table is to enable any manipulator who is about to enlarge (or reduce) a copy any given number of times to do so without troublesome calculation. It is assumed that the photographer knows exactly what the focus of his lens is, and that he is able to measure accurately from its optical center. The use of the table will be seen from the following illustration: A photographer has a *carte* to enlarge to four times its size, and the lens he intends employing is one of 6 inches equivalent focus. He must therefore look for 4 on the upper horizontal line and for 6 on the first vertical column and carry his eye to where these two join, which will be 30- $7\frac{1}{2}$. The greater of these is the distance the sensitive plate must be from the center of the lens; and the lesser, the distance of the picture to be copied. To *reduce* a picture any given number of times, the same method must be followed; but in this case the greater number will represent the distance between the lens and the picture to be copied, the latter that between the lens and the sensitive plate. This explanation will be sufficient for every case of enlargement or reduction.

If the focus of the lens be 12 inches, as this number is not in the column of focal lengths, look out for 6 in this column and multiply by 2, and so on with any other numbers.

UNITED STATES WEIGHTS AND MEASURES.

According to Existing Standards.

LINEAL.

	Inches.	Feet.	Yards.	Rods.	Fur's.	Mile.
12 inches= 1 foot.	12 =	1				
3 feet=1 yard.	36 =	3 =	1			
5.5 yards=1 rod.	198 =	16.5 =	5.5 =	1		
40 rods=1 furlong.	7,920 =	660 =	220 =	40 =	1	
8 furlongs=1 mile.	63,360 =	5,280 =	1,760 =	320 =	8 =	1

SURFACE—LAND.

	Feet.	Yards.	Rods.	Roods.	Acres.
144 sq. ins.=1 sq. ft.					
9 sq. ft.=1 sq. yard.	9 =	1			
30.25 sq. yds=1 sq. rod.	272.25 =	30.25 =	1		
40 sq. rods=1 sq. rood.	10,890 =	1,210 =	40 =	1	
4 sq. roods=1 acre.	43,560 =	4,840 =	160 =	4 =	1
640 acres=1 sq. mile.	27,878,400 =	3,097,600 =	102,400 =	2,560 =	640

VOLUME—LIQUID.

4 gills = 1 pint.	Gills.	Pints.	Gallon.	Cub. In.
2 pints = 1 quart.	32 =	8 =	1 =	231
4 quarts = 1 gallon.				

FLUID.

Gallon.	Pints.	Ounces	Drachms.	Minims.	Cubic Centimetres
1 =	8 =	128 =	1,024 =	61,440 =	3,785.435
	1 =	16 =	128 =	7,680 =	473.179
		1 =	8 =	480 =	29.574
			1 =	60 =	3.697

16 ounces, or a pint, is sometimes called a fluid pound.

TROY WEIGHT.

Pound.	Ounces.	Pennyweights.	Grains.	Grams.
1 =	12 =	240 =	5,760 =	373.24
	1 =	20 =	480 =	31.10
		1 =	24 =	1.56

APOTHECARIES' WEIGHT.

lb.	℥	ʒ	ʒ	gr.	Grams.
Pounds.	Ounces.	Drachms	Scruples	Grains.	Grams.
1 =	12 =	96 =	288 =	5,760 =	373.24
	1 =	8 =	24 =	480 =	31.10
		1 =	3 =	60 =	3.89
			1 =	20 =	1.30
				1 =	.06

The pound, ounce, and grain are the same as in Troy weight.

AVOIRDUPOIS WEIGHT.

Pound.	Ounces.	Drachms.	Grains (Troy).	Grams
1 =	16 =	256 =	7,000 =	453.60
	1 =	16 =	437.5 =	28.35
		1 =	27.34 =	1.77

ENGLISH WEIGHTS AND MEASURES.

APOTHECARIES' WEIGHT.

20 Grains	= 1 Scruple	= 20 Grains.
3 Scruples	= 1 Drachm	= 60 Grains.
8 Drachms	= 1 Ounce	= 480 Grains.
12 Ounces	= 1 Pound	= 5760 Grains.

FLUID MEASURE.

60 Minims	= 1 Fluid Drachm.
8 Drachms	= 1 Fluid Ounce.
20 Ounces	= 1 Pint.
8 Pints	= 1 Gallon.

The above weights are usually adopted in formulas.

All Chemicals are usually sold by

AVOIRDUPOIS WEIGHT.

27 $\frac{1}{2}$ Grains	= 1 Drachm	= 27 $\frac{1}{2}$ Grains.
16 Drachms	= 1 Ounce	= 437 $\frac{1}{2}$ Grains.
16 Ounces	= 1 Pound	= 7000 Grains.

Precious Metals are usually sold by

TROY WEIGHT.

24 Grains	= 1 Pennyweight	= 24 Grains.
20 Pennyweights	= 1 Ounce	= 480 Grains.
12 Ounces	= 1 Pound	= 5760 Grains.

Note.—An ounce of metallic silver contains 480 grains, but an ounce of nitrate of silver contains only 437 $\frac{1}{2}$ grains.

UNITED STATES FLUID MEASURE.

Gal.	Pints.	Ounces.	Drachms.	Mins	Cub. In.	Grains.	Cub. C. M
1	= 8	= 128	= 1,024	= 61,440	= 231.	= 58,328.886	= 3,785.44
	1	= 16	= 128	= 7,680	= 28.875	= 7 291.1107	= 473.18
		1	= 8	= 480	= 1.8047	= 455.6944	= 29.57
			1	= 60	= 0.2256	= 56.9618	= 3.70

IMPERIAL BRITISH FLUID MEASURE.

Gal.	Pints.	Ounces.	Drachms.	Mins	Cub. In.	Grains.	Cub. C. M.
1	= 8	= 160	= 1,280	= 76,800	= 277 27384	= 70,000	= 4,543.732
	1	= 20	= 160	= 9,600	= 34.65923	= 8,750	= 567.966
		1	= 8	= 480	= 1.73296	= 437.5	= 28.398
			1	= 60	= 0.21662	= 54 69	= 3.550

METRIC SYSTEM OF WEIGHTS AND MEASURES

MEASURES OF LENGTH.

DENOMINATIONS AND VALUES.		EQUIVALENTS IN USE.
Myriameter.....	10,000 meters.	6 2137 miles.
Kilometer.....	1,000 meters.	62137 mile, or 3,280 ft. 10 ins.
Hectometer.....	100 meters.	328. feet and 1 inch.
Dekameter.....	10 meters.	393 7 inches.
Meter.....	1 meter.	39 37 inches.
Decimeter.....	1-10th of a meter.	3.937 inches.
Centimeter.....	1-100th of a meter.	.3937 inch.
Millimeter.....	1-1000th of a meter.	.0394 inch.

MEASURES OF SURFACE.

DENOMINATIONS AND VALUES.		EQUIVALENTS IN USE.
Hectare.....	10,000 square meters.	2.471 acres.
Are.....	100 square meters.	119.6 square yards.
Centare.....	1 square meter.	1,550. square inches.

MEASURES OF VOLUME.

DENOMINATIONS AND VALUES.			EQUIVALENTS IN USE.	
NAMES.	No. OF LITERS.	CUBIC MEASURES.	DRY MEASURE.	WINE MEASURE.
Kiloliter or stere.	1,000	1 cubic meter.	1.308 cubic yards.	264.17 gallons.
Hectoliter.....	100	1-10th cubic meter.	2 bu. and 3.35 pecks.	26.417 gallons.
Dekaliter.....	10	10 cubic decimeters.	9.08 quarts.	2.6417 gallons.
Liter.....	1	1 cubic decimeter.	.908 quart.	1.0567 quarts.
Deciliter.....	1-10	1-10th cubic decimeter.	6.1023 cubic inches.	.845 gill.
Centiliter.....	1-100	10 cubic centimeters.	.6102 cubic inch.	.338 fluid oz.
Milliliter.....	1-1000	1 cubic centimeter.	.061 cubic inch.	.27 fl. drin.

WEIGHTS.

DENOMINATIONS AND VALUES.			EQUIVALENTS IN USE.
NAMES.	NUMBER OF GRAMS.	WEIGHT OF VOLUME OF WATER AT ITS MAXIMUM DENSITY.	AVOIRDUPOIS WEIGHT.
Millier or Tonneau.....	1,000,000	1 cubic meter.	2204.6 pounds.
Quintal.....	100,000	1 hectoliter.	220.46 pounds.
Myriagram.....	10,000	10 liters.	22.046 pounds.
Kilogram or Kilo.....	1,000	1 liter.	2.2046 pounds.
Hectogram.....	100	1 deciliter.	3 5274 ounces.
Dekagram.....	10	10 cubic centimeters.	.3527 ounce.
Gram.....	1	1 cubic centimeter.	15.432 grains.
Decigram.....	1-10	1-10th of a cubic centimeter.	1.5432 grain.
Centigram.....	1-100	10 cubic millimeters.	.1543 grain.
Milligram.....	1-1000	1 cubic millimeter.	.0154 grain.

For measuring surfaces, the square dekameter is used under the term of ARE; the hectare, or 100 ares, is equal to about 2½ acres. *The unit of capacity* is the cubic decimeter or LITER, and the series of measures is formed in the same way as in the case of the table of lengths. The cubic meter is the unit of measure for solid bodies, and is termed STERE. *The unit of weight* is the GRAM, which is the weight of one cubic centimeter of pure water weighed in a vacuum at the temperature of 4 deg. Cent. or 39.2 deg. Fahr., which is about its temperature of maximum density. In practice, the term cubic centimeter, abbreviated c.c., is generally used instead of milliliter, and cubic meter instead of kiloliter.

THE CONVERSION OF FRENCH (METRIC) INTO ENGLISH MEASURE.

1 cubic centimeter	=	17 minims.							
1 cubic centimeters	=	34	"						
3	"	=	51	"					
4	"	=	68	"	or 1 dram	8 minims.			
5	"	=	85	"	" 1	" 25	"		
6	"	=	101	"	" 1	" 41	"		
7	"	=	118	"	" 1	" 58	"		
8	"	=	135	"	" 2 drams	15	"		
9	"	=	152	"	" 2	" 32	"		
10	"	=	169	"	" 2	" 49	"		
20	"	=	338	"	" 5	" 38	"		
30	"	=	507	"	" 1 ounce	0 dram	27 minims.		
40	"	=	676	"	" 1	" 3 drams	16	"	
50	"	=	845	"	" 1	" 6	" 5	"	
60	"	=	1014	"	" 2 ounces	0	" 54	"	
70	"	=	1183	"	" 2	" 3	" 43	"	
80	"	=	1352	"	" 2	" 6	" 32	"	
90	"	=	1521	"	" 3	" 1	" 21	"	
100	"	=	1690	"	" 3	" 4	" 10	"	
1000	"	=	1 liter	=	34 fluid ounces nearly,	or 2½ pints.			

THE CONVERSION OF FRENCH (METRIC) INTO ENGLISH WEIGHT.

The following table, which contains no error greater than one-tenth of a grain, will suffice for most practical purposes:

1 gram	=	15½ grains.							
2 grams	=	30½	"						
3	"	=	46½	"					
4	"	=	61½	"	..... or	1 dram	1½ grain.		
5	"	=	77½	"	.....	" 1	" 17½ grains.		
6	"	=	92½	"	.....	" 1	" 32½	"	
7	"	=	108	"	.....	" 1	" 48	"	
8	"	=	123½	"	.....	" 2 drams	3½	"	
9	"	=	138½	"	.....	" 2	" 18½	"	
10	"	=	154½	"	.....	" 2	" 34½	"	
11	"	=	169½	"	.....	" 2	" 49½	"	
12	"	=	185½	"	.....	" 3	" 5½	"	
13	"	=	200½	"	.....	" 3	" 20½	"	
14	"	=	216	"	.....	" 3	" 36	"	
15	"	=	231½	"	.....	" 3	" 51½	"	
16	"	=	247	"	.....	" 4	" 7	"	
17	"	=	262½	"	.....	" 4	" 22½	"	
18	"	=	277½	"	.....	" 4	" 37½	"	
19	"	=	293½	"	.....	" 4	" 53½	"	
20	"	=	308½	"	.....	" 5	" 8½	"	
30	"	=	463	"	.....	" 7	" 43	"	
40	"	=	617½	"	.....	" 10	" 17½	"	
50	"	=	771½	"	.....	" 12	" 51½	"	
60	"	=	926	"	.....	" 15	" 26	"	
70	"	=	1080½	"	.....	" 18	" 0½	"	
80	"	=	1234½	"	.....	" 20	" 34½	"	
90	"	=	1389	"	.....	" 23	" 9	"	
100	"	=	1543½	"	.....	" 25	" 43½	"	
1000	"	=	1 kilogram	=	32 oz., 1 dr., 12½ gr.				

“UNIFORM SYSTEM” NUMBERS FOR STOPS FROM

$\frac{f}{1}$ TO $\frac{f}{100}$

In the following table Mr. S. A. Warburton calculated the exposure necessary with every stop from $\frac{f}{1}$ to $\frac{f}{100}$ compared with the unit stop of the “uniform system” of the Photographic Society of Great Britain. The figures which are underlined show in the first column what $\frac{f}{a}$ must be in order to increase the exposure in geometrical ratio from $\frac{f}{4}$, the intermediate numbers showing the uniform system number for any other aperture.

f	U. S. No.	f	U. S. No.	f	U. S. No.
1	$\frac{1}{16}$	15	14.06	58	210.25
$1\frac{1}{4}$	.097	16	16	59	217.56
1.414	$\frac{1}{8}$	17	18.06	60	225.00
$1\frac{1}{2}$	.140	18	20.25	61	232.56
$1\frac{3}{4}$	.191	19	22.56	62	240.25
2	$\frac{1}{4}$	20	25.00	63	248.06
$2\frac{1}{4}$	.316	21	27.56	64	256
$2\frac{1}{2}$	.350	22	30.25	65	264.06
2.828	$\frac{1}{3}$	22.62	32	66	272.25
$2\frac{3}{4}$	.472	23	33.06	67	280.56
3	.562	24	36.00	68	289.00
$3\frac{1}{4}$	.660	25	39.06	69	297.56
$3\frac{1}{2}$	.765	26	42.25	70	306.25
$3\frac{3}{4}$	.878	27	45.56	71	315.06
4	1.00	28	49.00	72	324.00
$4\frac{1}{4}$	1.12	29	52.56	73	333.06
$4\frac{1}{2}$	1.26	30	56.25	74	342.25
$4\frac{3}{4}$	1.41	31	60.06	75	351.56
5	1.56	32	64	76	361.00
$5\frac{1}{4}$	1.72	33	68.06	77	370.56
$5\frac{1}{2}$	1.89	34	72.25	78	380.25
5.656	2	35	76.56	79	390.06
$5\frac{3}{4}$	2.06	36	81.00	80	400.00
6	2.25	37	85.56	81	410.06
$6\frac{1}{4}$	2.44	38	90.25	82	420.25
$6\frac{1}{2}$	2.64	39	95.06	83	430.56
$6\frac{3}{4}$	2.84	40	100.00	84	440.00
7	3.06	41	105.06	85	451.56
$7\frac{1}{4}$	3.28	42	110.25	86	462.25
$7\frac{1}{2}$	3.51	43	115.56	87	473.06
$7\frac{3}{4}$	3.75	44	121.00	88	484.00
8	4	45	126.56	89	495.06
$8\frac{1}{4}$	4.25	45.25	128	90	506.25
$8\frac{1}{2}$	4.51	46	132.25	90.50	512
$8\frac{3}{4}$	4.78	47	138.06	91	517.56
9	5.06	48	144.00	92	529.00
$9\frac{1}{4}$	5.34	49	150.06	93	540.56
$9\frac{1}{2}$	5.64	50	156.25	94	552.25
$9\frac{3}{4}$	5.94	51	162.56	95	564.06
10	6.25	52	169.00	96	576.00
11	7.56	53	175.56	97	588.06
11.31	8	54	182.25	98	600.25
12	9.00	55	189.06	99	612.56
13	10.56	56	196.00	100	625.00
14	12.25	57	203.06		

American Photographic Societies

This list is compiled from information received from an inquiry form sent to over one hundred societies during the latter half of 1910. It includes many societies not given in the 1910 list, but falls short of completeness as a record of the photographic societies of America. Secretaries of societies not here listed are urged to send us particulars of their organizations so that the list may be fully representative of society activities.—Editor.

AKRON CAMERA CLUB—Akron, Ohio. Headquarters, Y. M. C. A. Building. Established 1890. Membership, 50. Date of meetings, second and fourth Tuesday in each month from October to May, inclusive. *President*, William Spanton; *Secretary*, A. S. Hibbs, 358 Dean Street. Date of annual exhibition, February.

AMERICAN FEDERATION OF PHOTOGRAPHIC SOCIETIES—Headquarters, Toledo Museum of Art, Toledo, Ohio. *President*, George W. Stevens, Director Toledo Museum of Art; *Vice-President*, John F. Jones; *Treasurer*, George W. Beatty; *Secretary*, C. C. Taylor, 3223 Cambridge Avenue; *Historian*, William A. Rheinheimer. For the advancement of pictorial photography, encouragement of pictorial workers and development of new talent. To hold an annual national Salon, of the highest class, to be exhibited in the principal American Art Museums and art centers.

AMERICAN INSTITUTE PHOTOGRAPHIC SECTION—New York City. Headquarters, 19-21 West 44th Street. Established March 26, 1859. Stated meetings, first and third Tuesdays of each month. No meetings during Summer months. *President*, Oscar G. Mason; *Vice-President*, Robert A. B. Dayton; *Treasurer*, James Y. Watkins; *Secretary*, John W. Bartlett, M.D., F.R.P.S., 149 West 94th Street.

AMERICAN LANTERN SLIDE INTERCHANGE—New York. Principal office, 361 Broadway. Organized 1885. *General Manager*, F. C. Beach. Membership, 20 clubs. *Board of Managers*, F. C. Beach, New York; Dr. Carlos E. Cummings, Buffalo, N. Y.; O. C. Reiter, Pittsburg, Pa.; H. R. Terhune, Orange, N. J.; Herbert F. Smith, Syracuse, N. Y. Annual meeting, January of each year.

ASSOCIATES IN PICTORIAL PHOTOGRAPHY—Circulates Portfolios to which each member contributes a print each month and criticizes those of other members. Twenty-two members. *Director*, William H. Zerbe, 345 Spruce Street, Richmond Hill, L. I.

BOSTON CAMERA CLUB—Boston, Mass. Headquarters, 50 Bromfield Street. Established 1881. Incorporated 1886. Membership, 120. Date of meetings, first Mondays. *President*, P. Hubbard; *Secretary*, John H. Thurston, 50 Bromfield Street. Date of annual exhibition, Spring.

BOSTON YOUNG MEN'S CHRISTIAN UNION CAMERA CLUB—Boston, Mass. Headquarters, 48 Boylston Street, Boston. Organized 1908. *President*, F. W. Hill; *Vice-President*, Henry C. Shaw; *Treasurer*, P. T. Cain; *Recording Secretary*, Harry Bump; *Corresponding Secretary*, Harry Shanen, 48 Boylston Street, Boston, Mass. Meetings held first Tuesday in each month.

BUFFALO CAMERA CLUB—Buffalo, N. Y. Headquarters, Block Building, corner Elmwood Avenue and Utica Street. Meets second and fourth Thursdays of each month. *President*, Chas. L. Peck; *Vice-President*, W. E. Bertling; *Secretary*, Frank V. Lepper, 87 Livingston Street, Buffalo, N. Y.

CALIFORNIA CAMERA CLUB—San Francisco, Cal. Headquarters, 833 Market Street, San Francisco. Established March 18, 1896. Incorporated April 5, 1890. Membership, 413. Date of meeting, second Tuesday, monthly. Monthly slide exhibitions, every third Friday in the month. Print exhibitions, monthly. Date of annual exhibition, no set time. *President* L. E. Edgeworth; *Secretary*, I. O. Crosscup, 833 Market Street, San Francisco, care California Camera Club.

CAMERA CLUB—New York. Headquarters, 121 West 68th Street. Established by consolidation of Society of Amateur Photographers and New York Camera Club in April, 1896. Incorporated May 7, 1896. Membership, 225. Date of annual meeting, first Thursday after the first Monday in January. *Secretary*, Monroe W. Tingley.

CAMERA CLUB OF THE TWENTY-THIRD STREET BRANCH, Y. M. C. A.—New York. Headquarters, 23d Street Y. M. C. A. Established June 3, 1904. Membership, 65. Date of business meetings, first Monday in each month; third Monday in each month, socials, lantern slide lectures, etc. *President*, Albert K. Dawson; *Vice-President*, Charles d'Emery; *Secretary*, J. O. Sprague, 215 West 23rd Street; *Treasurer*, John Downie. Date of annual exhibition, usually in January. No fixed date.

CAMERA WORKERS—New York. Headquarters, 122 East 25th Street. Organized 1908. This club has no officers, but is managed by an executive committee of its members. The membership is divided into three classes, and limited to 100. *Secretary*, Paul Haviland.

"CAMERADS"—New Brunswick, N. J. Headquarters, corner Church and George Streets. Established April 24, 1890. *Secretary*, Harvey Iredell, D.D.S., Lock Box 34, New Brunswick.

CAPITAL CAMERA CLUB—Washington, D. C. Headquarters, 1010 F. Street, N. W. Established April, 1891. Membership, 102. Date of meetings, second Friday in each month. *President*, Chas. E. Fairman; *Vice-President*, Francis C. Crow; *Treasurer*, Wallace C. Babcock; *Secretary*, E. G. Sicklen, 1010 F. Street, N. W.; *Librarian*, Frank E. Zabel. Date of annual exhibition, May.

CHICAGO CAMERA CLUB—Chicago, Ill. Headquarters, Northwestern University Building, Dearborn and Lake Streets. Established February 14, 1904. Incorporated February 19, 1904. Date of meetings, every Thursday. *President*, George C. McKee; *Vice-President*, C. B. Hale; *Secretary and Treasurer*, H. A. Langston, 311 So. Elmwood Avenue, Oak Park, Ill; *Assistant Secretary*, G. Sohn, 87 East Lake Street, Chicago. Annual exhibition, March (Salon).

COLUMBIA PHOTOGRAPHIC SOCIETY—Philadelphia, Pa. Headquarters, 2526 North Broad Street, Philadelphia. Established 1889. Incorporated July 3, 1894. Membership, 100. Date of meetings, first Monday of each month, business meeting; other Mondays, lectures or demonstrations. *President*, H. E. Cassel; *Secretary*, C. F. Davis, 2526 North Broad Street, Philadelphia. Date of annual exhibition, January, prints; November, lantern slide.

COLUMBUS PHOTO-PICTORIALISTS—Columbus, Ohio. Headquarters, 20 East Broad Street. Established May 10, 1910. Membership, 28. *President*, A. L. Kidd; *Vice-President*, Adolph Keller; *Secretary*, C. L. McKibben; *Treasurer*, W. C. Dunn.

DAGUERRE CAMERA CLUB—Headquarters, Harbert, Mich. Established 1893. Membership, 20. Date of meetings, first Monday of each month. *President*, F. Blish; *Secretary*, Wells Sizer, Harbert.

ELMIRA CAMERA CLUB—Elmira, N. Y. Headquarters, 112 Baldwin Street, Elmira. Established 1902. Membership, 30. *President*, H. E. Snyder; *Secretary-Treasurer*, Geo. B. Nicewonger.

ESSEX CAMERA CLUB—Newark, N. J. Headquarters, 33 Court Street, Newark, N. J. Organized July, 1899. Membership, 75. Date of meetings, fourth Tuesday of every month. *President*, Fred Keim; *Secretary*, L. F. Gebhardt, 235 So. Eleventh Street. Date of annual exhibition, February.

HAMILTON SCIENTIFIC ASSOCIATION. CAMERA SECTION—Hamilton, Can. Headquarters, 104 King Street, W. Established April, 1891. Membership, 80. Date of meetings, second and fourth Mondays. *President*, E. G. Overholt; *Secretary*, Sinclair G. Richardson, 700 Bank of Hamilton Bldg. Date of annual exhibition, last week of October.

HAVERHILL CAMERA CLUB—Haverhill, Mass. Headquarters, Daggett Building, Merrimack Street. Established 1898. Membership, 37 active, 1 honorary. Date of meetings, third Tuesday, monthly. *President*, Albert S. Colby; *Secretary*, Harry J. Rivers, 3 Proctor Street; *Treasurer*, Vard B. Leavitt. Date of annual exhibition, no set date. Usually in March.

- INTERNATIONAL PHOTOGRAPHIC ASSOCIATION**—San Francisco, Cal. Founded 1908. *President*, F. B. Hinman, Room 4, Union Depot, Denver, Colo.; *Chief Album Director*, J. H. Winchell, R. F. D. No. 2, Painesville, Ohio; *General Secretary*, Fayette J. Clute, 413-415 Call Building, San Francisco; *Stereoscopic Album Director*, Harry Gordon Wilson, 4954 Washington Avenue, Chicago, Ill.; *Director Post Card Division*, Charles M. Smythe, 200 S. Marion Street, Denver, Colo. The *State Secretaries*: Alabama—Richard Hines, Jr., 155 State Street, Mobile. Alaska—P. S. Hunt, Valdez. California—Sigismund Blumann, 3159 Davis Street, Fruitvale, Cal. Colorado—O. E. Aultman, 106 E. Main Street, Trinidad. Connecticut—George E. Moulthrop, Bristol. Florida—Capt. E. S. Coutant, U. S. Life-Saving Service, Oak Hill. Illinois—George A. Price, R. F. D. No. 1, Summit. Indiana—H. E. Bishop, 1704 College Avenue, Indianapolis. Iowa—C. E. Moore, Eddyville. Kansas—H. E. High, R. F. D. No. 1, Wilson. Maryland—E. G. Hooper, 218 East 20th Street, Baltimore. Massachusetts—John Mardon, 161 Summer Street, Boston. Michigan—W. E. Ziegenfuss, M. D., 327 West Hancock Avenue, Detroit. Minnesota—Leonard A. Williams, St. Cloud. Mississippi—Emory W. Ross, Institute Rural Station, Edwards. Missouri—Wharton Schooler, R. F. D. No. 2, Eolia. Montana—Mrs. Ludovica Butler, 932 W. Broadway, Butte. Nebraska—Miss Lou P. Tillotson, 1305 South 32nd Street, Omaha. New Hampshire—Mrs. A. Leonora Kellogg, 338 McGregor Street, Manchester. New York—Louis R. Murray, 266 Ford Street, Ogdensburg. New Jersey—Burton H. Albee, 140 State Street, Hackensack. North Dakota—Jas. A. Van Kleeck, 619 Second Avenue, North Fargo. Ohio—J. H. Winchell, R. F. D. No. 2, Painesville. Oregon—Leonard S. Hopfield, Box 622, McMinnville. South Dakota—C. B. Bolles, L. B. 351, Aberdeen. Texas—Frank Reeves, Graham. Utah—John C. Swenson, A. B., Provo. West Virginia—Wm. E. Monroe, Box, 298 Point Pleasant. Wisconsin—H. Oliver Bodine, Racine.
- JAMESTOWN CAMERA CLUB**—Jamestown, N. Y. Established 1907. Headquarters, Arcade Building, Jamestown, N. Y. Membership, 42. Meetings, second Tuesday of month. *President*, Alexander Parsons; *Vice-President*, A. H. Hooper; *Treasurer*, E. H. Sample; *Secretary*, L. C. Ogren.
- LOS ANGELES CAMERA CLUB**—Los Angeles, Cal. Headquarters, 3rd floor, 321 South Hill Street, meet every Wednesday at 8 p. m. Organized 1908. *President*, R. S. Crandall; *Secretary*, T. K. Adlord, 1104 West 42nd Street.
- MISSOURI CAMERA CLUB**—St. Louis, Mo. Club Rooms, Suite No. 26 and 27, Euclid Building. Organized November, 1903. Meetings, first and third Monday. Members American Federation of Photo Societies. *President*, Edward Brown; *Vice-President*, W. E. Rolfe; *Secretary*, Francis S. Ives; *Treasurer*, Chas. Lindenschmit.
- MONTREAL AMATEUR ATHLETIC ASSOCIATION CAMERA CLUB**—Montreal, Canada. Headquarters, M. A. A. Building, 250 Peel Street. Organized May 1, 1906. Membership, 45. Meetings monthly. *President*, A. M. Bryson; *Vice-President*, W. R. Allen; *Recording Secretary and Treasurer*, Chas. Adkin, 48 St. James Street; *Corresponding Secretary*, Herbert C. Stone, 334 Craig Street.
- NEW BRITAIN CAMERA CLUB**—Organized 1892. *President*, E. H. Start; *Secretary*, E. A. Sheldon; 53 Lenox Place, New Britain, Conn. Meets second and fourth Tuesdays, 173 Main Street.
- NEW ENGLAND PHOTOGRAPHIC EXCHANGE**—E. A. Sheldon, *Exchange Secretary*, 53 Lenox Place, New Britain, Conn.
- ORANGE CAMERA CLUB**—Orange, N. J. Headquarters, 222 Main Street. Established March 21, 1892. Incorporated May 19, 1893. Membership, 120. Date of meetings, 5th and 20th of each month, except July and August. *President*, H. R. Terhune; *Secretary*, W. A. Rudstad, 222 Main Street, Orange. Dates of annual exhibitions, Fall and Spring.
- OREGON CAMERA CLUB**—Portland, Ore. Established 1895. Incorporated 1903. Headquarters, 207 Park Street. Membership, 150. Date of meetings, second Tuesday in January. *President*, H. J. Thorn; *Vice-President*, B. S. Durkee; *Secretary*, C. G. Seward; *Treasurer*, C. F. Richardson. Date of annual exhibition, early Spring.
- PEN, PENCIL AND CAMERA CLUB OF PITTSBURG**—Pittsburg, Pa. Headquarters, 805 Home Trust Building. Limited membership of twenty. Waiting list filled. *President*, F. E. Johnson; *Secretary-Treasurer*, R. L. Sleeth, Jr.
- PHOTOGRAPHIC CLUB OF BALTIMORE**—Baltimore, Md. Headquarters, Club House, 847 Hamilton Terrace. Established 1885. Incorporated 1890. Membership, active 52, associate, 20, honorary 10, non-resident 3, total 85. Date of meetings, every Tuesday, 8:15 P. M. *President*, Percy M. Reese; *Secretary*, A. Victor Boyd, 10 Cottage Avenue. Date of annual exhibition, December.

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA—Philadelphia, Pa. Headquarters, 1722 Arch Street. Established November, 1862. Incorporated April 24, 1885. Membership, 144. Date of meetings, second and third Wednesday, 8 P. M. *President*, C. Yarnall Abbott; *Secretary*, Edward H. Smith, 1722 Arch Street. Date of annual exhibition, February.

PHOTO-PICTORIALISTS OF BUFFALO—Buffalo, N. Y. Organized October, 1906. Membership, 8. Meeting, semi-monthly. *Correspondent*, W. H. Porterfield, 100 Lakeview Avenue.

PHOTO-SECESSION—New York, N. Y. Headquarters and Galleries, 291 Fifth Avenue. Continuous exhibitions November-April. *Director*, Alfred Stieglitz.

PITTSBURG ACADEMY OF SCIENCE AND ART (PHOTOGRAPHIC SECTION)—Pittsburg, Pa. Headquarters, Carnegie Institute, Schenley Park. Organized January 23, 1900. Membership, 100. Meetings, second Tuesday of each month at Club Room, 6017 Penn Avenue. *President*, O. C. Reiter; *Lantern Slide Director*, B. W. Stewart, 417 Wood Street; *Print Director*, H. F. Walbridge, 6017 Penn Avenue; *Secretary-Treasurer*, F. L. Miller, 1113 Union Station.

PITTSBURG PHOTO-PICTORIALISTS—Pittsburg, Pa. Headquarters, 406 6th Avenue. *Director*, Chas. K. Archer.

PORTLAND CAMERA CLUB (PHOTOGRAPHIC SECTION) OF THE PORTLAND SOCIETY OF ART—Portland, Me. Headquarters, Spring cor. High Street. Established 1899. Membership, 90. Date of meetings, every Friday evening. *President*, H. A. Roberts; *Secretary*, O. P. T. Wish. Date of annual exhibition, in February.

POSTAL PHOTOGRAPHIC CLUB—Headquarters, Washington, D. C. Established December, 1888. Membership, 40. Date of meetings, no regular meeting. *President*, Charles E. Fairman; *Secretary*, Gustavus A. Brandt, 631 Maryland Avenue, S. W., Washington, D. C. Albums circulate among members monthly, except August and September.

PROVIDENCE CAMERA CLUB—Providence, R. I. Established 1883. Incorporated 1889. Headquarters, Commercial Bldg., 55 Eddy Street. Total membership, 100. Date of meetings, second Saturday of each month. *President*, C. W. Morrill; *Secretary*, H. Ladd Walford, 55 Eddy Street; *Treasurer*, Homer Winslow.

ROCHESTER CAMERA CLUB—Rochester, N. Y. Headquarters, Wilder Arcade, Rochester, N. Y. *President*, W. B. Cline; *Vice-President*, D. C. Ward; *Treasurer*, S. P. Hines; *Secretary*, Chas. C. Zoller, 100 Delevan Street.

ST. LAWRENCE CAMERA CLUB—Ogdensburg, N. Y. Headquarters, 26 Jay Street. Established 1900. Membership, 12. Date of meetings, at the call of the Secretary. *President*, Arthur L. Jameson; *Secretary*, John N. Brown, 26 Jay Street.

SALON CLUB—Thirty members. *Director*, W. H. Zerbe, 345 Spruce Street, Richmond Hill, L. I., N. Y.; *Secretaries*, W. and G. Parrish, 5607 Cobanne Avenue, St. Louis. Circulate monthly portfolios.

SYRACUSE CAMERA CLUB—Syracuse, N. Y. Headquarters, Y. M. C. A. Building. Established 1886. Incorporated January 19, 1892. Membership, 101. Date of meetings Friday evening of each week. *President*, J. E. Bierhardt; *Secretary*, M. L. Trowbridge, 216 Ulster Street.

TOLEDO CAMERA CLUB—Toledo, Ohio. Member of the American Federation. Headquarters, Museum of Art. Meets second Wednesday of month. *President*, John F. Jones; *Vice-President*, W. A. Ward; *Secretary*, C. C. Taylor, 3223 Cambridge Avenue; *Treasurer*, M. W. Chapin.

TORONTO CAMERA CLUB—Toronto, Canada. Established 1887. Incorporated 1893. Headquarters, 2 Gould Street. Membership, 180. Date of meetings, every Monday, from October to April, inclusive. *President*, Alfred Robinson; *Secretary-Treasurer*, Hugh Neison, 295 Carlton Street. Date of annual exhibition, March or April.

TOWN AND COUNTRY CAMERA CLUB—St. Paul, Minn. Established 1901. Date of meetings, every week, at which lectures and demonstrations are given pertaining to camera work. Outing excursions on May 30. *President*, George L. Nevins; *Secretary*, M. W. Wright, 905 Charles Street, St. Paul, Minn. Exhibitions annually.

WILKES-BARRE CAMERA CLUB—Wilkes-Barre, Pa. Rooms, Coal Exchange Building. Meets every Tuesday, 8 o'clock. *President*, H. C. Shepherd; *Secretary*, E. B. Wogner. Exhibition annually, in the spring.

WISCONSIN CAMERA CLUB—Milwaukee, Wis. Headquarters, 305 Enterprise Building. Organized 1906. Meets every Tuesday. *President*, Lucien R. Worden; *Secretary*, George R. Haynes; *Treasurer*, Dr. R. G. Washburn.

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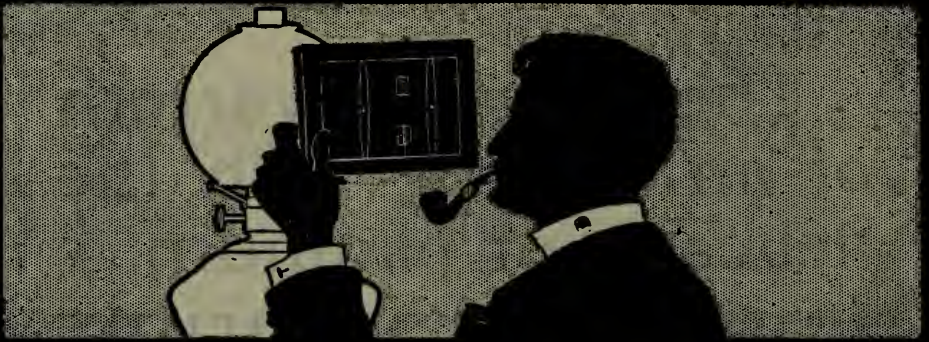
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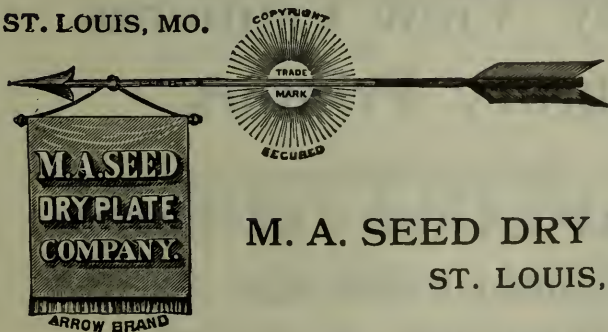
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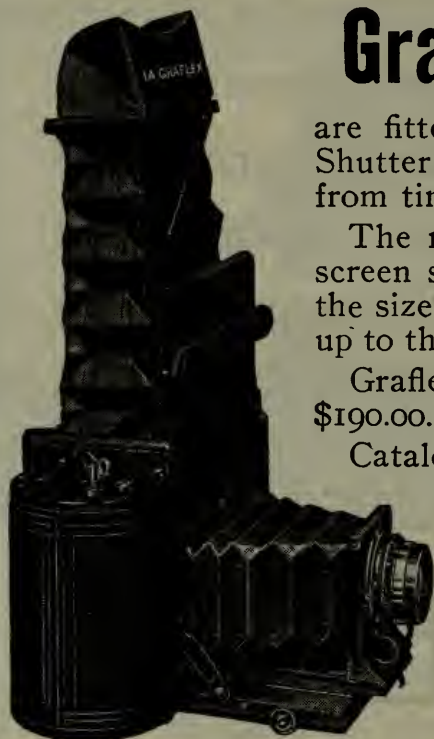
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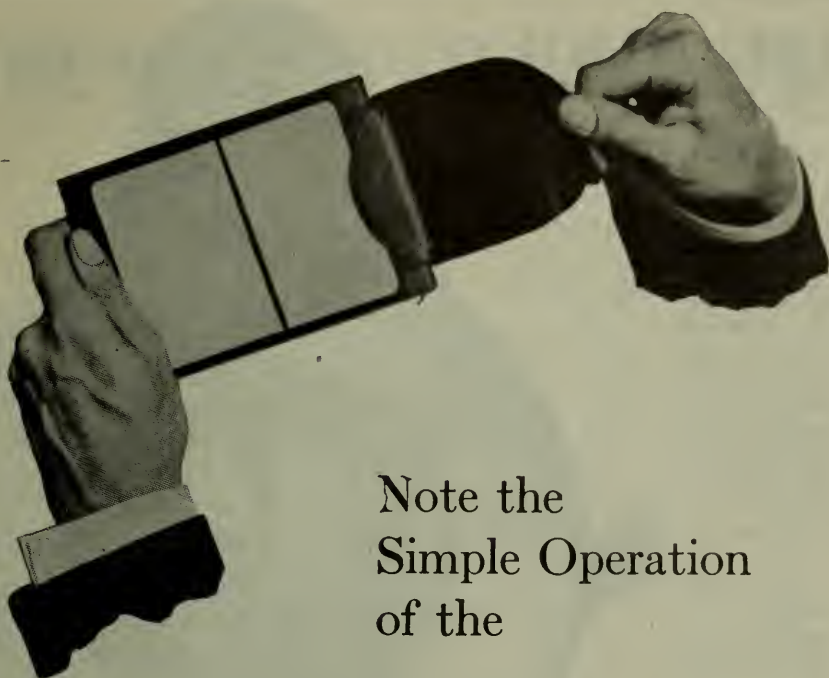
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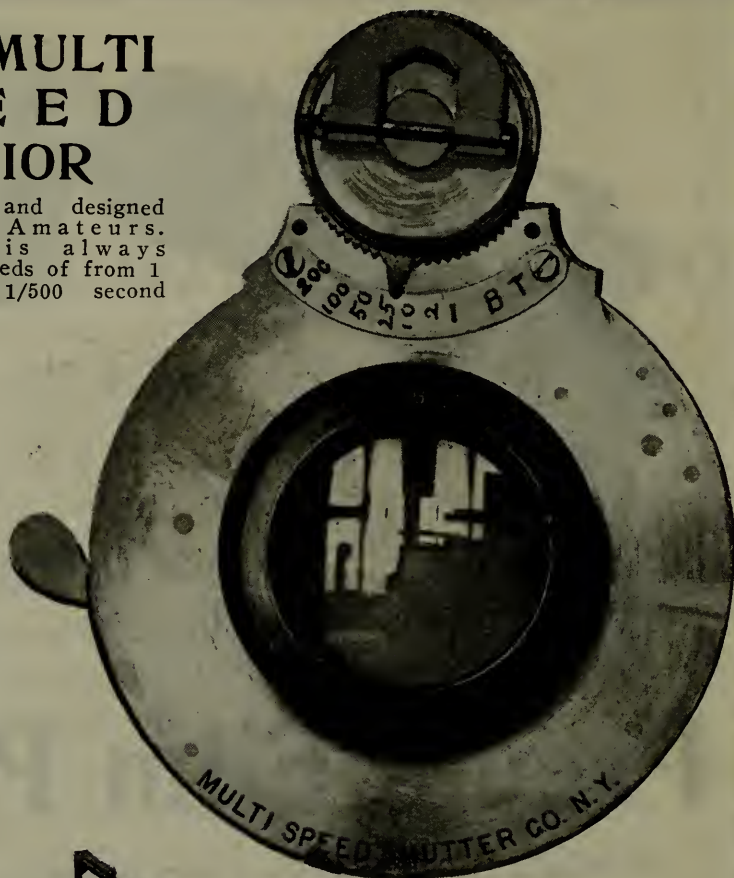
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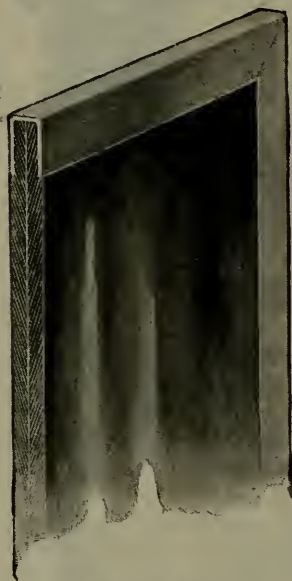
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The Royal Foreground Ray Screen is so constructed that the color, which is a strong orange yellow at the top, is gradually diminished until perfect transparency is attained at the bottom. The practical effect of the gradual blending of color is to sift out or absorb the powerful chemical rays from the clouds and sky, which pass through the strongly colored top of the filter, without perceptibly decreasing the weak il-

lumination of the reflected light from the foreground, which comes through the transparent or colorless lower part of the screen in full intensity.

The reason that daylight cloud pictures are rare is that the strength of the illumination from the sky is many, many times that of the partially absorbed and reflected light from objects on the ground.

If a correct exposure is given to the clouds, then the landscape is badly under-exposed; if the correct exposure is given to the landscape, then the clouds are literally burnt up from over-exposure, and no matter how contrasty they may have appeared to the eye, an unscreened photograph shows only a blank white sky.

The Royal Foreground Ray Screen is also very useful for subjects which are more strongly illuminated on one side than on the other, as in photographing by the light of a side window or in a narrow street. By simply turning the dark side of the foreground screen toward the bright side of the object a good, even exposure will result.

No.	Diameter Inches.	Price.	No.	Diameter Inches.	Price.
0	$\frac{7}{8}$	\$1.50	8	$2\frac{1}{2}$	\$3.00
1	$1\frac{5}{16}$	1.50	9	$2\frac{3}{4}$	3.25
2	for box cameras	1.50	10	3	3.50
3	$1\frac{7}{16}$	1.50	11	$3\frac{1}{4}$	4.00
4	$1\frac{1}{2}$	1.50	12	$3\frac{1}{2}$	4.50
5	$1\frac{3}{4}$	2.00	13	4	5.25
6	2	2.25	14	$4\frac{1}{2}$	6.00
7	$2\frac{1}{4}$	2.50			

GEORGE MURPHY, Inc.

57 East 9th Street

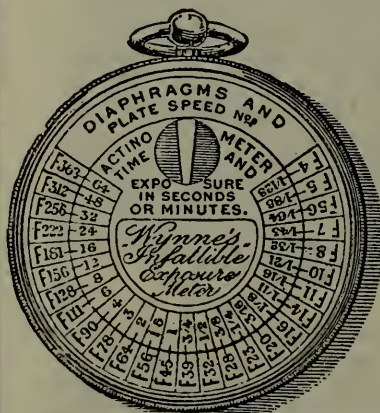
NEW YORK

You Set the ONE Scale, It Does the Rest

The Wynne "Infallible" Exposure Meter

THE CHOICE OF AMERICA'S FOREMOST PHOTOGRAPHERS

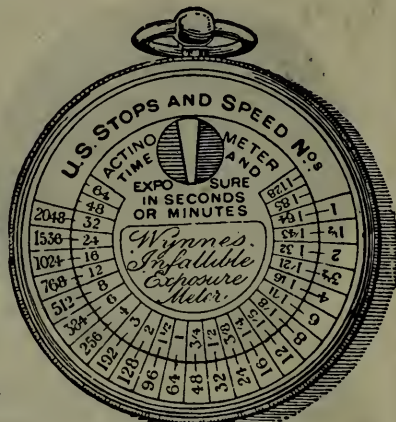
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For F System.



Locket Meter.
Actual Size.



For Uniform System.

An unerring guide to the correct exposure required for every speed of plate, on every kind of subject, and under every condition of light. For any set of conditions of **Light, Plate, and Lens Aperture**, only two simple operations are necessary to find simultaneously the correct exposure for every stop from the largest to the smallest, viz:

Firstly—Turn the milled edge of the instrument, and thus expose through the slot a fresh surface of sensitive paper until it assumes the color of the painted tint, and note the number of seconds or minutes it takes to color. This is called the **Actinometer Time**.

Secondly—Set the movable scale until this **Actinometer Time** is against the **Speed Number of the Plate** to be used, then against every stop in outer scale will be found the correct corresponding exposure, or, shortly, you set the one Scale, it does the rest.

These Meters are furnished in the F. and U. S. systems. When ordering please specify what system you desire.

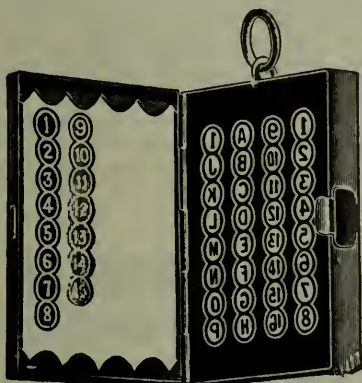
Negative Exposure Meter, watch pattern, nickel case, each.....	\$2.50
Negative Exposure Meter, watch pattern, silver case, each.....	5.00
Negative Exposure Meter, locket pattern, silver case, each.....	3.50
Negative Exposure Meter, locket pattern, 14-kt. rolled gold case, each..	4.50
Gem Exposure Meter, solid silver (Hall marked), each, complete.....	3.50
Extra packets of Sensitive Paper.....	.15
Extra Books of Instructions and Speed Card.....	.05
Extra dial and glass "U. S." or "F." system, per pair.....	.25
New springs for inside of watch meters, each.....	.15
Pocket cases of tan leather.....	.50

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NOT LIKE OTHER METERS



For automatically indicating the correct exposure required for printing Platinotype, Carbon, Engineers' Sun Prints, etc., with absolute accuracy and without any calculation whatever, and for testing the speed of Photographic Plates and Prints.

RULE.—Expose the Printing Frame and Print Meter at the same time, and to the same light, and when the Test Number in the Meter just appears readable the print will always be correctly exposed.

In this simple rule is expressed all that is necessary to observe in order to ensure the absolutely correct exposure of Platinotype, Carbon, Engineers' Prints, or any other printing process requiring development to bring out the latent image. Print Meter, in nickel-plated case, each, complete.....\$2.50
Extra packets of sixty test strips, each......15
Extra Books of Instructions, each......05

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Patent

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The estimated speed at which a shutter is working is practically always a matter of pure guesswork, and in consequence the great majority of snap shots are failures. The speeds, even when marked on the shutter, will often be found altogether inaccurate. In some cases we have found them in error to the extent of between 100 and 300 per cent. With "The Infallible" Shutter Speed Tester you can find out in a few minutes the different speeds at which your shutter works, and so obtain correctly exposed snap shots. Half-a-dozen speed tests may be made on one plate.

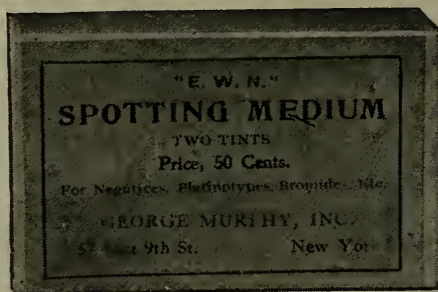
Price, complete\$1.50



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57 East Ninth St., New York

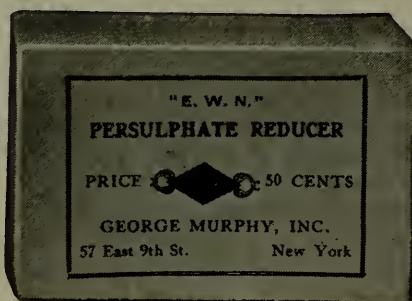
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Trial size20

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This salt possesses the extraordinary property of reducing only the parts of a negative actually requiring reduction, thus preserving full detail in the shadows. For negatives with too much contrast, it is worth its weight in gold, as it retains all the good and makes the dense parts print well. It is freely used by all the knowing ones now. Over-develop your snapshots till the shadows are full of detail—that ruins the highlights of course. Then use Persulphate and the lights at once reduce to a beautiful printing

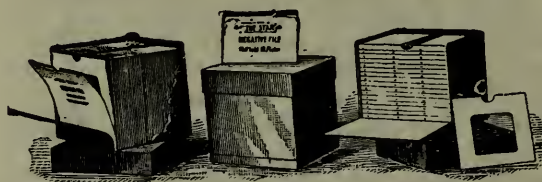
density. In hermetically sealed glass tubes, each tube making a bath for many plates. Sealed tubes are necessary, as the bulk chemical keeps poorly.

Prices

Per package of 12 tubes.....\$0.50 Trial package of 2 tubes.....\$0.10

IF YOU USE THE STAR NEGATIVE FILE

(Patented July 16, 1900)



you can instantly locate any negative desired. This file provides a perfect means of storing and indexing negatives. It is a

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5 x 745	3¼ x 4 For lantern slides. .30	

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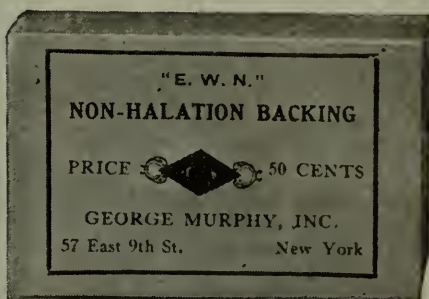
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With this backing, which is most easily applied and removed, ordinary glass plates are made perfect. It prevents that white fog around light objects, renders perspective truthfully, lends atmosphere and removes all restrictions as to source or intensity of light. With Backed Plates you can take nature as you find her truthfully and artistically. The thing for snow scenes or interiors. One package will back 250 5x7 plates.

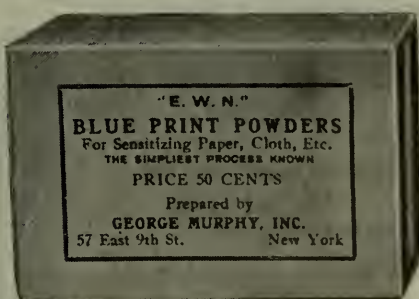


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Trial size20

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These powders offer a ready and convenient means for preparing the well-known "Blue Prints" or Cyanotypes. By dissolving the contents of one package of the powders in the proper quantity of water a solution is obtained which will sensitize paper, canvas, silk, linen, cardboard or almost any substance upon which a print can be made. The prints are prepared by exposing this sensitized material, under a negative, to sunlight, and then simply washing it with water. Each of these tubes makes half an ounce of the best deep-blue sensitizer, making about three dozen 4x5 sheets, or a yard of cloth. Prints are absolutely permanent. A child can use this simple process, which, though the cheapest and easiest known, is wonderfully beautiful. A brush can be made of each tube for applying the solution.



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Trial box of 2 tubes..... .10

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(Patented)

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WITHIN THE REACH OF EVERYONE**

**Converts any camera into an enlarging lantern without
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This Enlarging Lamp converts any camera into an enlarging lantern without the use of condensers, enabling enlargements to be made at home in any room which can be darkened. By means of this lamp and his regular camera any amateur is equipped to make enlargements on bromide paper. It is fitted with two incandescent gas lamps. The construction of the lamp is such that the light is reflected so as to give a perfect, even illumination. The light is adjusted evenly over the entire surface of the negative and perfect enlargements are obtained.

The time of exposure varies according to the power of the light, the density of the negative and size of the enlargement. Approximately an average negative enlarged to four times the original size will take about one to one and one-half minutes, a thin negative will take less exposure and a denser negative more exposure, a greater enlargement will require longer exposure, a smaller enlargement a shorter exposure.

Prices

No. 1. For 5x7 and smaller negatives..\$12.00

No. 2. For 8x10 and smaller negatives.. 15.00

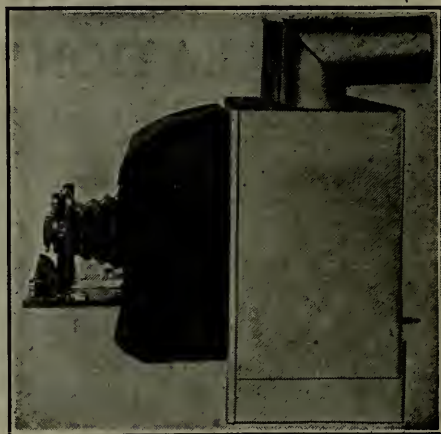
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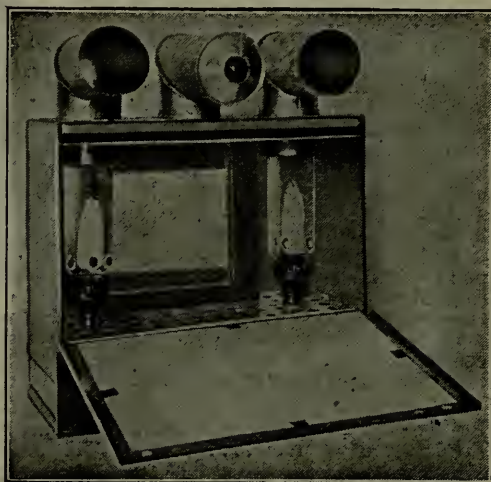
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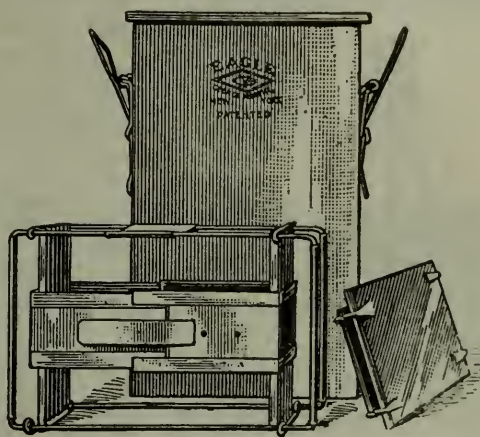
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and
Adjustable



Instantly adjusted to any sized plate.

Superior to all other makes, for the reason that it is adjustable to any sized plate smaller than the size for which it is listed; thus one tank will serve for various sizes of plates. The cover is held with clamps, so that the tank can be reversed as often as desired.

The rack is so constructed that it slides up and down on four rods. These rods project above the solution serving as a handle for removing rack without touching the solution with your hand. This is not possible with any other tank on the market. Made of brass heavily nickel plated.



Prices

No. 100.	For 4×5 , $3\frac{1}{4} \times 5\frac{1}{2}$, $3\frac{1}{4} \times 4\frac{1}{4}$, $3\frac{1}{4} \times 4$, $3\frac{1}{2} \times 3\frac{1}{2}$ —6 grooves	\$3.50
No. 101.	For 5×8 , 5×7 , $4\frac{1}{4} \times 6\frac{1}{2}$, 4×5 , $3\frac{1}{4} \times 5\frac{1}{2}$ —6 grooves	4.50
No. 103.	For $6\frac{1}{2} \times 8\frac{1}{2}$, 5×8 , 5×7 , $4\frac{1}{4} \times 6\frac{1}{2}$ —6 grooves	8.50
No. 104.	For 8×10 , $6\frac{1}{2} \times 8\frac{1}{2}$, 5×8 , 5×7 —6 grooves...	10.00
Eagle Tank Developing Powders,	per package 6 powders each25

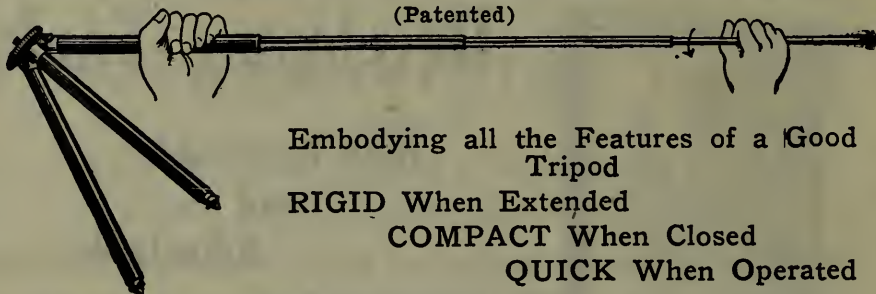
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The Quick-Set Metal Tripod

(Patented)



Embodying all the Features of a Good
Tripod

RIGID When Extended

COMPACT When Closed

QUICK When Operated

The **Quick-Set** is **Rigid** because made of brass tubing, nickel plated. When extended it is a continuous rod of metal and will bear any reasonable weight.

The **Quick-Set** is **Compact** because when closed it is shorter than any other make, when extended longer.

The **Quick-Set** is **Quick** because it can be extended in a moment by pulling out each leg fully and giving a short twist to the left, securely locking all sections at once.

The **Quick-Set** eliminates all the defects found in other makes of tripods. It has no buttons or pins, and the legs cannot become loosened.

The **Quick-Set** Tripod, where fastened to the head, is reinforced by a pinion, making it absolutely unbreakable. However, in case of accident any section of the legs can readily be replaced at slight expense. Again, the **Quick-Set** does away with the objectionable buttons and springs used on other makes of metal tripods. It has no projecting parts, and the lock is so constructed that it is impossible to slip or unlock under pressure. Another feature of superiority over other metal tripods is the adjustable one; can be locked at any section, thereby shortening it, if needed.

Nos. 51 to 56, inclusive, are made with the legs fastened to a circular head $1\frac{3}{4}$ inches in diameter. No. 60 lies perfectly flat, the head being a flat piece of metal $\frac{3}{4}$ -inch wide, $2\frac{1}{2}$ inches long, it is so made as to fold over, when extended, and form a broad triangular-shaped head.

The No. 75 is constructed with a loose tripod screw, with a long shank, making it very easy to turn the camera in any desired direction, and then clamp firmly. The top is covered with green felt, to prevent marring the camera.



No. 75



No. 60

Prices

No.	Sections.	Length Extended.	Length Closed.	Weight.	Price.
51	3	39½ in.	15 in.	13½ oz.	\$2.25
52	3	54 "	16½ "	14½ "	2.35
53	4	48½ "	14 "	19 "	3.00
55	5	49½ "	12 "	20 "	4.25
56	5	57 "	13½ "	22 "	4.50
60	5	50 "	12 "	21 "	5.00
75	4	50½ "	15 "	25 "	4.75

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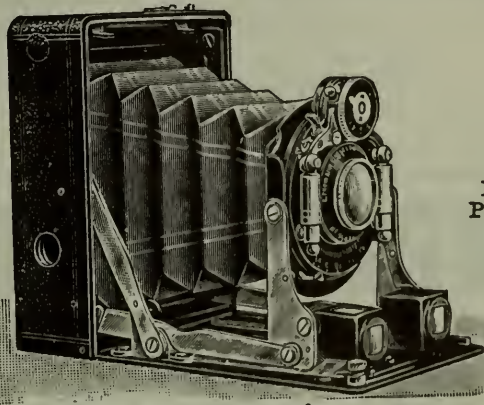
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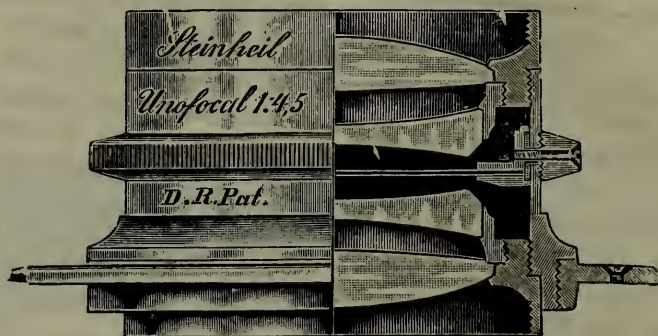
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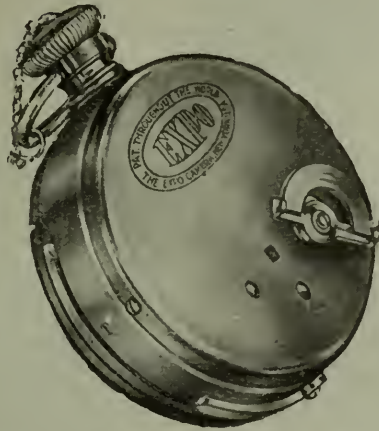
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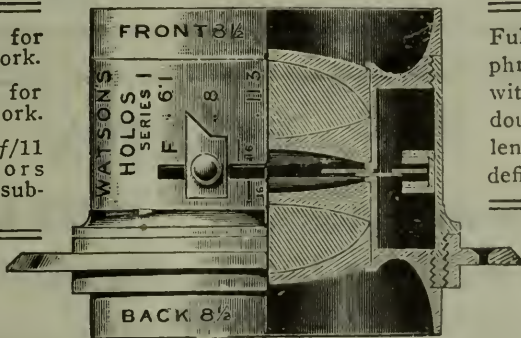
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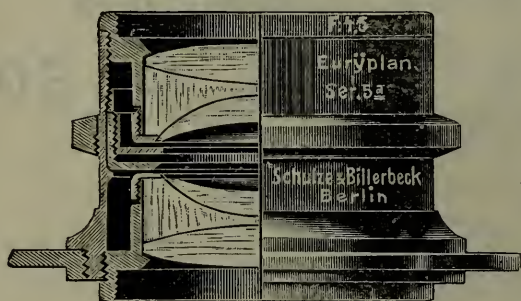
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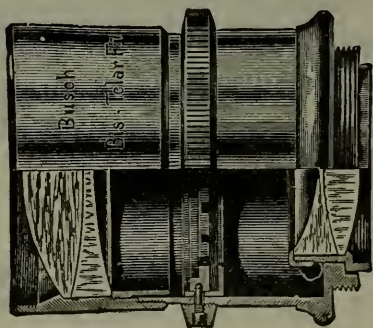
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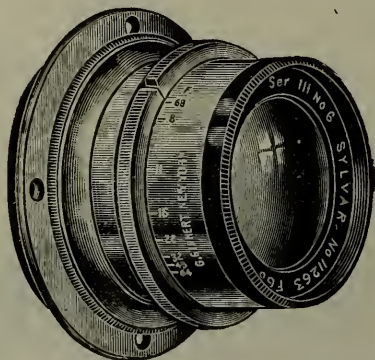
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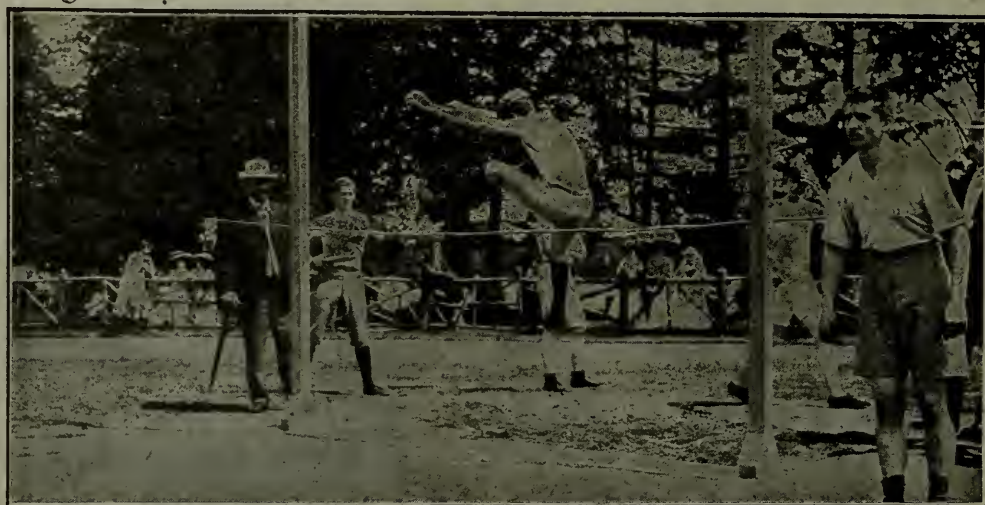
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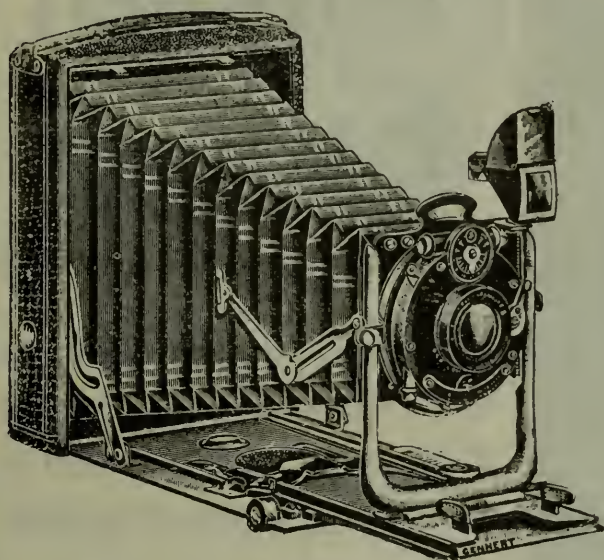
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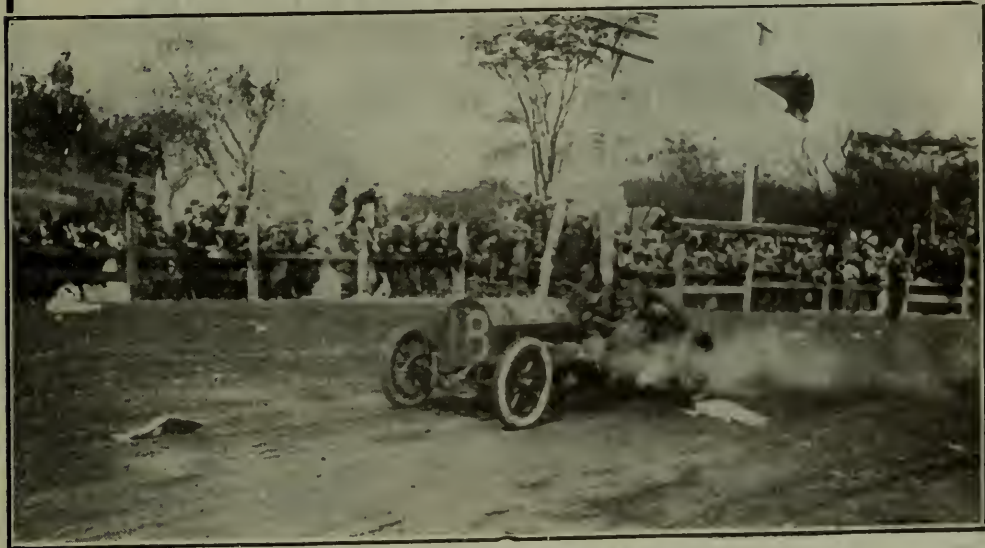
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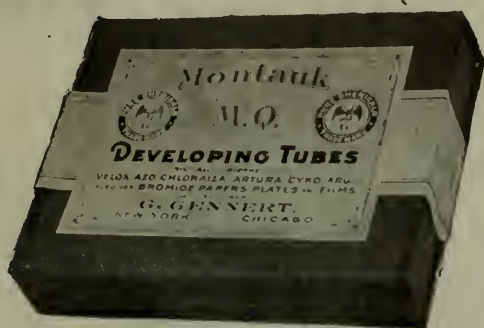
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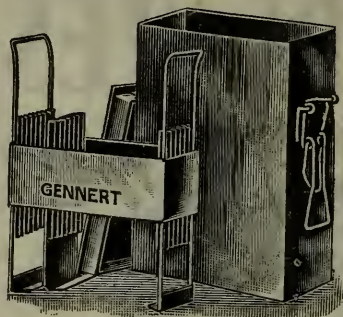
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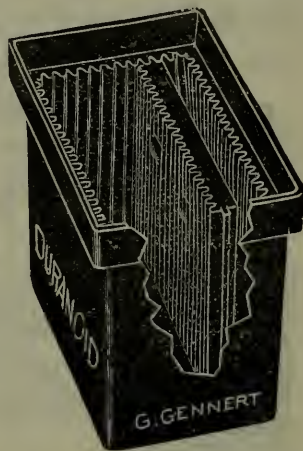
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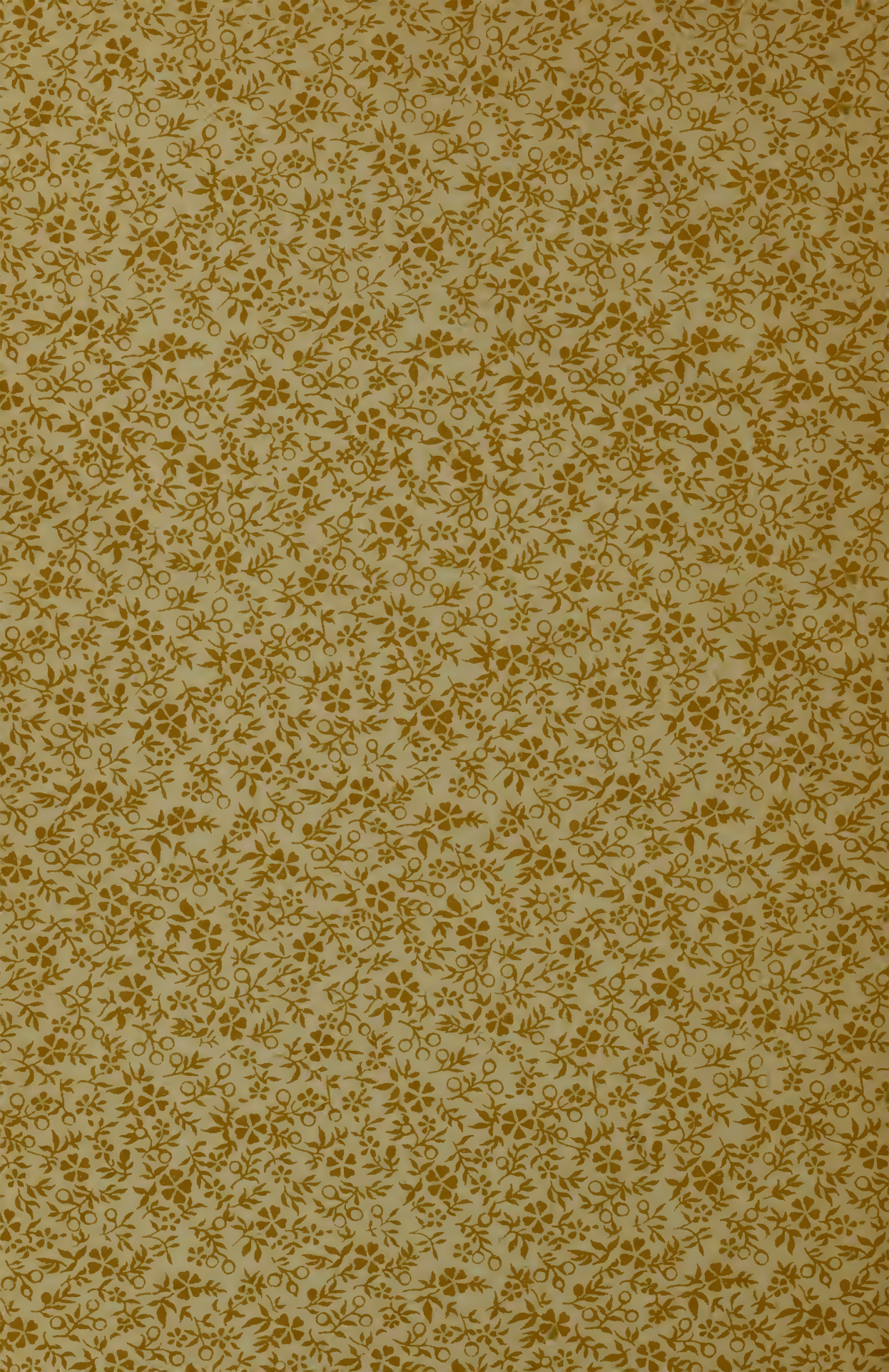
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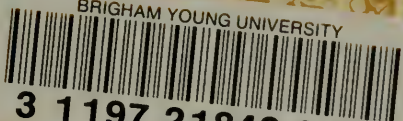
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